

**THE INTERNATIONAL AGENCY
FOR THE PREVENTION OF BLINDNESS**

FIFTH GENERAL ASSEMBLY

Berlin May 9-13 1994

PROCEEDINGS



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EXECUTIVE STATEMENT

Each year the number of blind people in the world is estimated to increase by more than 1 million. At the present time 40 million people are blind and another 20 million have severe visual impairment. This number will continue to increase if specific steps are not taken immediately to combat this problem.

The infrastructure of 100 national committees and programmes, the technological expertise of the WHO-PBL programme and ophthalmological professions, and the resources of UN agencies, governments and 20 non-governmental and service organisations offer the opportunity to mount a world-wide campaign to halt and reverse the trend of increasing world blindness.

The important steps to be taken towards achieving this goal are:

- 1 The delivery of high volume, good quality cataract surgery to the 20 million people blind from cataract living in developing countries, especially the Indian sub-continent and Africa.
- 2 The delivery of essential eye medications to treat ocular infections endemic in the poor, rural populations of Africa, Asia and Latin America.
- 3 The prevention of nutritional blindness in young children through the provision of a daily diet with adequate vitamin A.
- 4 The training and equipping of ophthalmic workers to deliver essential eye care services, particularly to the 1 billion people who are under 5 years or over 50 years of age living below the poverty line in low income communities.

The International Agency for Prevention of Blindness has a key role to play in providing an environment of information exchange, co-ordination and advocacy, at the global and regional levels, which will facilitate the development and strengthening of national programmes in order that these important actions can be undertaken.

It is essential that these important initiatives are reinforced by a political will and commitment on the part of individual countries.

International Agency for the Prevention of Blindness
5th General Assembly
Berlin May 1994

**Welcoming Address
by Prof. Dr. Rita Süßmuth
Speaker of the German Federal Diet
to the 5th General Assembly
of the International Agency for the Prevention of Blindness
Berlin ICC, May 9-13, 1994**

Ladies and gentlemen,

I consider it an honour to officiate as patron of the 5th General Assembly of the International Agency for the Prevention of Blindness. Both as Speaker of the German Federal Diet and as a former Minister of Health of the Federal Republic of Germany, the problems associated with health care are close to my heart. I regret very much not being able to attend your interesting meeting because of pressing commitments elsewhere.

Looking at the most recent figures published by the World Health Organization, I find that about 35 million people are blind, while half that number again are severely visually handicapped. All in all, therefore, more than 50 million people suffer from advanced visual disability. We must not forget the fact that all these figures represent individual human beings and their suffering. Very frequently, blindness causes untold personal grief not only to those afflicted but also to their entire families, particularly as in most cases blindness implies the loss of any earning capability. Particularly in the countries of the Third World, the onset of blindness spells the complete disruption of the individual's private life, because rehabilitation for blind adults is the exception rather than the rule.

According to the WHO, it is to be feared that the number of people afflicted by blindness is on the increase. In this context, the fact that most blind people by far live in the developing countries is of particular significance. In spite of great efforts on the part of the countries concerned, as well as on the part of the international community, this situation has not changed in the past few decades. Most of those who are blind now could have been spared this fate if they had been treated in time. At this point, we must ask ourselves what we neglected to do in the past, and what could be done in the future to protect people from blindness and to help those that are blind.

In the Federal Republic, a number of organisations exist which assist greatly in the struggle against blindness in the Third World. Besides the Federal Ministry for Economic Cooperation, there is the Society for Technical Cooperation, the International Migration Centre, and the German Development Service, to name but a few. Next to these, there are a number of non-governmental organisations like the German Committee for the Prevention of Blindness, Christoffel Blindenmission, Dienste in Übersee, the Working Group on Development Aid, and many others. We are happy to see that national committees for the prevention of blindness are being established in an increasing number of countries in order to gather funds and expertise from all available sources and from all interested parties, and to coordinate eye health care and personal assistance.

In many countries, both private and church organisations cooperate actively with local ministries of health. Thus, for instance, Christoffel Blindenmission is cooperating with the World Health

Organization in the support of more than 1,000 permanent projects in more than 100 countries in Asia, Africa, Latin America, and Eastern Europe which relate to blindness prevention, sight restoration, eye medicine, and the vocational and general education and rehabilitation of the blind. Besides, I do recognise and appreciate the efforts of numerous doctors, nurses, and rehabilitation workers who are devoting themselves to these important tasks, particularly the training and in-service education of local aid workers.

Still, it would be desirable to mobilise even more German experts and motivate them to devote their time and their strength to aiding visually handicapped people living in developing countries, and to helping people there through eye care services. Although the service supplied in Germany by almost 7,000 ophthalmologists and numerous good university clinics is excellent, we are still lagging behind some other European countries in this respect. One aspect of particular importance in this regard surely is the professional reintegration of doctors who have worked abroad, and the future prospects of young practitioners in general.

If we are to succeed in suppressing eye diseases and blindness we need not only to improve our therapy and rehabilitation facilities but also to reinforce prevention as the most important aspect of health policy. What we need is a worldwide effort to inform the public about the problem of avoidable blindness. It is not only poverty that hampers timely eye treatment in the developing countries; far more frequently, people simply are not informed adequately. Lack of education, faulty nutrition, and inadequate preventive eye care are very closely related. Thus, many children could be assisted simply by informing their mothers about what local foods are rich in vitamin A. In this context, I am happy to see that among other points, this meeting will focus particularly on the prevention of blindness among children.

We are aware that health care provisions are anything but homogeneous. Consequently, a need arises for coordinating and concentrating our forces. This being so, this General Assembly should focus not only on cooperation between North and South; Berlin is the ideal place to discuss joint initiatives to combat blindness in the Eastern European countries as part of the rapprochement between West and East.

I am aware of the difficulties facing the International Agency for the Prevention of Blindness in promoting and protecting eye health in the next four years, because it is to be expected that financial resources will dwindle, and that regional and national conflicts will hamper its efforts. The theme of this meeting is: 'Towards affordable, accessible, appropriate eye care'. This reflects the policy of the IAPB, which is to develop equitable, financially affordable, and methodologically useful eye care services, while accepting that both IAPB's options and its resources are restricted.

Let me wish this meeting the best of success, and may everyone involved be inspired in his or her future efforts in the service of human health by fruitful exchanges about experiences and ideas. Given the wide range of subjects covered in the course of this IAPB meeting, I am certain that everyone attending will have important ideas to take back home to his or her daily work. It is to be wished that as many as possible of the approaches suggested at this meeting will be implemented eventually in the best interest of the more than 50 million visually handicapped persons in the world. It is our hope that at the next meeting in four years' time, the reports presented then will say that the number of people afflicted by blindness is no longer increasing but decreasing.

INTERNATIONAL AGENCY FOR PREVENTION OF BLINDNESS

Berlin 8 - 13 May 1994

A MESSAGE FROM THE DIRECTOR-GENERAL OF THE WORLD HEALTH ORGANIZATION

Visual disability is of major public health concern in many parts of the world, not only because of the high number of blind people in developing countries, but also because of the social, educational, economic and developmental consequences of loss of vision.

Generally, two-thirds or more of visual impairment could be avoided through either prevention or cure. The World Health Organization's Programme for the Prevention of Blindness, together with an international network of collaborating non-governmental organizations, has developed strategies that emphasise eye health promotion, the prevention of blinding diseases, and the treatment of conditions amenable to sight restoration or preservation, as integral parts of primary health care.

In fact, the theme of your Assembly - **"Towards Affordable, Accessible, Appropriate Eye Care"** - addresses the three main issues of primary health care.

I am conscious of the close collaborative links that the International Agency for the Prevention of Blindness and its member organizations have with the World Health Organization, and of the joint ventures that have been undertaken. This Assembly is a further step in that fruitful co-operation. I am confident that its deliberations will contribute to new knowledge, lead to innovative approaches in eye health care and significant steps forward in progress towards the joint achievement of our common objectives.

I wish your Assembly every success.

Hiroshi Nakajima M.D., Ph.D

OPENING CEREMONY

The message of welcome from Prof. Dr. Rita Süßmuth was read on her behalf by Prof. Volker Klauss. The message from the Director-General of the World Health Organization was read by Dr R. Pararajasegaram. In addition to these addresses, the Opening Ceremony included welcoming speeches from the following:-

Mr Alan W. Johns, President, IAPB

Dr Peter Luther, Minister of Health, City of Berlin

Prof. Dr. med. Volker Klauss, Chairman, German National Committee for the
Prevention of Blindness

Rev. Christian Garms, Executive Director, Christoffel-Blindenmission

Em. Prof. Akira Nakajima, President, International Federation of
Ophthalmological Societies

Mr David Blyth, President, World Blind Union

Prof. Dr. med. H.J. Thiel, Chairman, German Society of Ophthalmology (DOG)

Before the commencement of the Scientific Programme, the President called for a minute's silence to be observed in tribute to the memory of the late Prof. S.R.K. Malik, the Regional Chairman for South-East Asia, who had died tragically in a motor accident on 30 May, 1993.

REGIONAL REPORTS

Brief reports were given by the Regional Chairmen of IAPB concerning the magnitude and causes of blindness, and the constraints and developments experienced during the last 4 year period.

These reports are summarised in Table 1.

OVERVIEW OF BLINDNESS IN THE 6 REGIONS 1990 - 1994

Table 1

Region	Pop.	Prev.	No. Blind	Causes	Major Constraint	Important Development
Africa	550 (10%)	0.8- 1.4	6.6 (19%)	Cataract Trachoma Onchocerciasis	Lack of trained people	New training programmes Further NGO involvement
Americas	740 (14%)	0.2- 0.7	3.2 (9%)	Cataract Glaucoma Diabetic Retinopathy	Accessibility for isolated populations.	Increased involvement of Ophthalmologists Promotion of cataract services. Formation of OEPA for oncho control
East Mediterranean	410 (8%)	0.6 - 0.8	2.9 (8%)	Cataract Trachoma Vitamin A deficiency	Accessibility for rural populations	Regional workshops. NGO involvement in delivering eye care.
Europe	860 (15%)	0.2 - 0.4	2.6 (8%)	Cataract Glaucoma Diabetic retinopathy	Negative changes in the economic situation of countries.	Promotion of links between well-resourced and poorly-resourced European countries.
South East Asia	1350 (25%)	0.6 - 0.8	9.5 (27%)	Cataract Glaucoma Vitamin A deficiency	Management in service delivery.	Workshops in management. Resource mobilisation from World Bank and Lions.
Western Pacific	1550 (28%)	0.6 - 0.8	10.2 (29%)	Cataract Glaucoma Vitamin A deficiency	Accessibility of island and rural communities.	Good development of national programmes. eg. Vietnam.
Total	5460 (100%)	0.2 - 1.4	35.0 (100%)	Cataract Trachoma Glaucoma	Accessibility Manpower Management	Manpower training. Resource mobilisation National Programme development

Each region has held Regional IAPB meetings during the last 4 years. These have proved valuable in promoting awareness and understanding of the situation regarding blindness in the individual regions. It is intended to repeat these regional meetings during the next quadrennium.

AFFORDABLE EYE CARE

AFFORDABLE EYE CARE

Keynote Address. Alfred Sommer, MD, MHS

Sir John Wilson opened the first IAPB General Assembly by noting our fundamental task "is to mobilize all the resources necessary to achieve a practical solution in reasonable time." Sixteen years later, at this 5th Quadrennial Assembly, we return to the very same theme.

Our overarching challenge is the development of locally affordable, sustainable programs appropriate to each of our country's resources, while capitalising upon a mutually supportive network of regional and international institutions.

Affordability is a relative issue and a societal decision of enormous complexity - it depends as much on the cost of preserving sight as it does on the degree to which sight is prized. Affordability is not entirely an issue of wealth.

Some countries are rich in ophthalmic talent but short on vital supplies or modern technology. Others lack ophthalmic personnel, supplies and equipment of all types. While third world countries are indeed poor - usually in human as well as fiscal resources - many have made enormous gains through judicious and innovative investments, as in developing a "backbone" of ophthalmic officers and concentrating on delivering care at primary and secondary levels. At the same time, wealthy markets like the US, United Kingdom and Canada are scrambling through self-declared health care crises.

What it costs and how much it is prized are neither simple nor straightforward; by examining their subtle determinants we may discover potential ways to shift the fulcrum and affect their balance.

- "Cost" depends upon how much money you spend and how you spend it.

The wealthiest nations spend enormous sums on health care - in the US, a trillion dollars a year; almost \$3000 for every citizen; one-seventh of our entire GNP. Canada, Germany and Japan are not far behind. These wealthy countries all decry their current health care crises. Yet, after a sharp rise in longevity, once countries surpass a per capita GNP of \$1000, there is relatively little additional gain with additional societal wealth. Costa Rica, with only 1/10th the per capita GNP of the US, has the same life expectancy.

Why does US health care cost so much? Primarily because of inefficiencies in providing services and over-utilization of expensive technology that provides relatively little gain. The United States performs more coronary bypass operations than any other country, while children in Baltimore are less well immunized than children in Nigeria.

While capita GNP has relatively little impact on standard health indices, the same is not the case for visual impairment and blindness. Even in Baltimore, the prevalence of visual impairment declines with increasing household income. Life expectancy primarily reflects relatively inexpensive preventive and primary services provided to young children. Chronic diseases of ageing, like cataract, require labour and capital-intensive investments. Even so, these investments are extraordinarily cost effective.

The World Bank's landmark "World Development Report - 1993" developed a new unit for quantifying health: the DALY, or Disability-Adjusted Life Year. It serves as a useful measure of the global burden of disease and as a means of assessing the relative cost effectiveness of competing health interventions. Two issues of interest, cataract and vitamin A deficiency, contribute a significant proportion of global ill health.

Not surprisingly, most DALYs are lost to premature mortality, which basically parallels the severity of financial distress. A substantial proportion, roughly one-third of all DALYs, are lost to disability. Fortunately, the economists have concluded that interventions relevant to blindness prevention are among the most cost-effective in medicine. Cataract extraction, at \$34 per DALY, is the only surgical procedure in the top category of favourable cost-effectiveness. Vitamin A supplementation, at \$1 per DALY, is among the most cost-effective interventions in medicine.

Populations will not grasp these important points; but those who mould public opinion or make government policy certainly can - particularly with our assistance, and now with the World Bank's imprimatur.

Worldwide initiatives over the past 16 years have drastically reduced the costs associated with the preservation of sight.

- **NUTRITIONAL BLINDNESS** yields to a 3c (US) capsule or change in diet
- **RIVER BLINDNESS** yields to vector control and microfilaricides
- **TRACHOMA** yields to simple improvements in hygiene - indeed, blinding trachoma spontaneously disappeared from Indonesia, where nurses trained to perform trichiasis surgery needed to find new employment; and from the eastern province of Saudi Arabia, where modest economic development resulted in a ten-fold decline in active trachoma in under a decade.
- **MEASLES**, responsible for 80% of blind African school children, has yielded to EPI efforts and vitamin A intervention.
- **CATARACT**, that great demon of surgically reversible blindness, responds to increased efficiencies of program management and reduced costs for supplies and equipment. Outpatient surgery and modern management techniques have revolutionised surgical efficiency. It is obvious that there remains room for improvement. Wide variations in ophthalmologists per capita, from 1 per 12,000 in the Czech Republic, to one per million in some areas of sub-Saharan Africa, only tell part of the story. The average ophthalmologist in market economies, like the US, performs far more surgery than his or her counterpart in eastern Europe and Asia: on average, a ratio of 8 to 1. These differences surely reflect huge disparities in available resources with which to purchase equipment and supplies. But they also reflect, perhaps in equal measure, differences in expectations and motivation of ophthalmologists and patients alike.

Some countries, particularly India, have enormous elasticity in their potential supply of cataract surgical procedures. India currently performs 1.5 million cataract extractions annually, but has set a target of 2 million. At that rate, the average ophthalmologist would be performing two to three times as many procedures as the average American ophthalmologist. A quick calculation

suggests this is eminently feasible. Staff at the Aravind Eye Hospital perform 25 to 40 procedures daily, which may seem taxing until one recalls that Norval Christy and his colleagues in Taxila performed 100 to 200 aphakic extractions daily. If one assumes the average Indian ophthalmologist could modestly perform a third the number of procedures performed by an ophthalmologist at Aravind, 10 per day, for 200 days a year, the 7500 Indian ophthalmologists could theoretically remove 14 million cataracts annually. This is seven times the goal of the Indian government and enough to eradicate the entire backlog of cataract blind in India within a single year!

Of course, every situation is more complex than it first appears. High volume cataract surgery requires exquisite organization, provision of inexpensive equipment and supplies, and a constant stream of patients eager to benefit from the procedure.

Institutions like Madurai have shown that highly efficient organisational structures are well within any country's capacity. One must meticulously describe each job to be done; train the least expensive individuals to precisely perform that particular job; and employ capable administrators to organise the system and ophthalmologists to carry out the most critical professional tasks.

David Green estimates that equipment and supplies account for 80% of the cost of surgery. These costs can be dramatically reduced by local production and pooled purchasing power. Sophisticated IOLs are already being produced in India and Eritrea. Thanks to SEVA and Fred Hollows Foundations among others, IOL production will soon be underway in Nepal, Vietnam, and elsewhere. Aravind charges as little as \$8 for an IOL, less than the cost of custom-ground aphakic spectacles.

Of course one still needs patients. Demand is even more elastic than the supply of services. People vote with their feet and with their pocketbook. Where they prize an outcome, they will seek it out and pay the cost, provided of course, they recognise its value. Even illiterate villagers in south India learned of the remarkable rehabilitative qualities of IOLs and now specifically demand them. The economic incentive works: younger, visually impaired subjects now come for surgery before they become blind, because they can readily calculate the economic advantage of good vision and are therefore willing to invest a tiny proportion of what would otherwise be their lost wages. Regardless of what IOL surgery may do to reduce the existing backlog of cataract blind, widespread availability of IOL surgery will certainly reduce the accumulation of the visually impaired, and for the present, the "near-blind." In the course of time this will, in and by itself, reduce the incidence and subsequently the prevalence and number of cataract blind.

Years ago we demonstrated that even aphakic correction could have a dramatic impact on the social and economic status of cataract patients: the cost of the procedure was repaid within three months of work and even the most elderly regained their social standing within the family and community.

Once a population recognises the social and economic benefits of an effective intervention, they will demand its provision. Governments will have little choice but to respond by providing or subsidising its availability. India is an example of a country that has developed an ambitious long-range plan to deal with the cataract problem, with annual goals set for the ophthalmic community and backed by government expenditures. This is even more true for Nepal, where an ambitious national and highly rational program was initiated a little over a decade ago. Over 150 ophthalmic assistants, the backbone of eye care services, have been produced in the interim: the number of eye surgeons have more than quintupled; and the number of cataract procedures increased over six-fold.

It must not be forgotten, however, that populations are sensitive to economic, geographic and cultural disincentives. Foster and his colleagues found that the distance to a hospital determined the degree to which patients waited for consultation, an impact that was greater on females than males. Seventy percent of Ghanaian females presenting with glaucoma to a hospital more than 100 miles from where they lived were already blind.

The US provides a cautionary tale: economic and even geographic access to services do not necessarily guarantee their use. Cataract surgery has quintupled in the United States over the past two decades. But unoperated cataract remains the single most important cause of blindness in East Baltimore - in a population entirely covered by governmental health insurance and living within two miles of the Wilmer Eye Institute. We are only just beginning to understand the source of such "cultural inaccessibility" and methods for overcoming it.

Multiple studies, from India to South America, indicate that only 20% of bilaterally blind patients referred for cataract surgery bother to undergo it. In Madurai, a variety of different techniques were used to convince the cataract blind to undergo aphakic surgery; the highest proportion, still only 33%, presented when all costs, including meals and transportation for accompanying relatives, were provided. It may well be that more intensive marketing and greater awareness of the superior rehabilitation provided by IOLs will further penetrate the market and produce a greater response. This was certainly the case in the Philippines where social marketing of cataract surgery, over a brief period, produced a sizeable increase in surgical procedures.

We are in a cataract surgical "transition". Those with the greatest experience, in India, Nepal and Pakistan, have determined that base hospitals, often the satellite of more sophisticated facilities, can provide cataract surgery of high quality, efficiency, and sustainability. Eye camps are primarily utilised to publicise the benefits of eye care, identify those in need, educate the population, and in rare instances, provide services to remote populations.

They've also recognised an important principle for the success of our efforts, whether they be cataract surgery, delivery of primary eye care services, or prevention of xerophthalmia. Imbedding ocular health and preservation of vision in the core health infrastructure is pivotal to ensuring their long-term sustainability. Eye services must be sold in the broader context of a nation's health system, expenditure allocations, resources and competing priorities.

Integrating programs into the general health system also reduces cost: one need only deal with the marginal cost added by that item; the health infrastructure carries the remaining cost. For example, prevention of Xerophthalmia, river blindness and trachoma are all labour-intensive, requiring the delivery of a tablet once every 6 to 12 months, or health education and behavioural modification. The primary care system can deliver it essentially cost-free.

A vitamin A capsule costs only 3c(US). A system entirely devoted to visiting homes simply to distribute capsules twice a year raises the cost to nearly 50c(US). By including capsule distribution in the routine work of community-based primary health workers, the marginal cost of delivering vitamin A or ivermectin, or even identifying visually-impaired adults who need referral to an ophthalmic facility, is minimised.

Costs can be dramatically reduced, as well, through subsidies. At Aravind, wealthier, paying patients subsidise the care of the poor; in other instances, governments, NGOs and other agencies subsidise costs. Last year, the international community poured over \$70 million into subsidising

local eye services; the amount will grow, at least in the short term, as the Lions International SightFirst program continues to come on-line, joining the long-established efforts of CBM, HKI, Sight Savers International, the International Eye Foundation, Operation Eyesight Universal, and others. These private and public subsidies are invaluable in leveraging local initiatives - but can be their mainstay. When UNICEF withdrew financial support for African immunization programs, these programs practically collapsed overnight. Indigenous sustainability, through high local demand, is the key to long-term success.

Basic and applied research represent long-term investments in cost-effective sight preservation. Continuing research, until the last case was dealt with, was absolutely essential to the success of the smallpox eradication program. The strategies initially employed when the program began proved less effective than hoped; refined strategies, including surveillance and containment, the introduction of freeze-dried vaccine, and development of the bifurcated needle were all essential for success. Similarly, if we continued to use only existing technology, we'd be fighting polio with the iron lung. Fluoridation of water supplies, long controversial in the US as a "communist plot", has virtually eliminated dental caries, forcing the closure of many American dental schools - and apparently the reason Swiss dentists are said to advise their patients to replace their fillings every three years.

Carl Kupfer, IAPB's second president, suggested many years ago that delaying the onset of cataract by ten years could reduce by half the number of cataract operations required. We've already begun to recognise some of the risk factors responsible for developing cataract.

With cataracts at least ten years earlier in Asia than in Europe or the United States, identification and control of the responsible agent should not be beyond our grasp.

We are on the verge of a "paradigm shift", what used to be called an "aha experience".

- Even the poorest countries are becoming involved in local production of sophisticated supplies, including modern IOLs, where they previously imported all their sutures and eye drops.
- Training programs are now dedicated to community ophthalmology and application of appropriate technology. The Johns Hopkins School of Hygiene and Public Health is engaged in an innovative, long-distance training program in public health management, beginning with 50 senior health managers who will attend most of their "classes" in their native Taiwan.
- The Program Planning Committee, meeting before the last General Assembly four years ago, engaged in a heated discussion of the appropriateness of IOL surgery in the third world. Today, Sight Savers International, Helen Keller International, the Saudi Eye Foundation and others are training ophthalmologists in micro surgical techniques, the use of IOLs and even corneal transplantation.
- Christoffel Blindenmission and the National Eye Institute are sponsoring research projects comparing the cost, safety, efficacy and impact on quality of life of intracapsular cataract extraction combined with anterior chamber intraocular lenses, versus intracapsular cataract extraction and aphakia.
- Other agencies are joining HKI in its long-term approach to assisting governments in redirecting policy that results in sustainable change.

- While the SEVA and Fred Hollows Foundations are supporting the construction of IOL factories throughout the third world, the International Federation of Eye Banks is establishing corneal tissue repositories in over a dozen countries, stretching from the Czech Republic, to Egypt, Nepal, China and beyond.
- The Saudi Eye Foundation, with its regional focus on the Middle East and North Africa, is providing Arabic language versions of surgical trichiasis manuals prepared by the Edna McConnell Clark Foundation and the World Health Organization, even as it fosters continuing education of ophthalmologists through its Pan Arab Congress of Ophthalmology and its new, high-quality *Middle East Journal of Ophthalmology*.

The nature and extent of these activities is enough to take anyone's breath away; and at the same time, raise our spirits. It is difficult to imagine how it could ever have been planned in a rational manner.

The immediacy of cataract surgery makes its benefits apparent. Unfortunately the value of other blindness prevention activities are less immediately obvious and therefore poorly appreciated. Controlling Xerophthalmia, onchocerciasis and trachoma can have similar or even greater impacts on systemic health. Since this is not readily apparent, even to the population at risk, their value needs to be sold directly to the government. The argument and evidence is sound, but must be forcefully delivered. At least two powerful forces can assist in these efforts:

- A consortium of interest groups, including other NGOs, civic organisations, and agencies concerned with social welfare, can exert greater influence than any single constituency on its own.
- There is a need to move beyond the narrowly focused "blindness prevention" agenda.

In many countries, visual impairment and blindness is a compelling argument; indeed, in the US, it is the single most feared disorder. But in financially-constrained times and countries, ministries of health are consumed by competing priorities of seemingly greater immediacy. I readily recall discussing the importance of vitamin A intervention programs with minister after minister - their response was nearly uniform: it was dreadful that young children became night blind or permanently blind from vitamin A deficiency, but when a third or a fourth of all children die before the age of five, they simply couldn't justify devoting significant portions of their limited health budget to prevent blindness.

That perception changed when it was discovered that vitamin A deficiency dramatically increased childhood morbidity and mortality - the ministers of health could prevent blindness and death with the same intervention. This synergy is not limited to xerophthalmia: each of the major blinding diseases have serious systemic consequences:

Vitamin A deficiency is associated with increased severity of infectious episodes and case fatality, particularly from measles and diarrhoea.

Trachoma is caused by chlamydia, which among other things is responsible for a significant proportion of infantile pneumonia and death.

Both onchocerciasis and cataract are associated with reduced survival, even if the responsible mechanisms are not yet clear.

These systemic implications of blinding diseases will generate political allies and firmly anchor avoidable blindness and visual impairment within the core health enterprise, a position vital to its implementation and long-term success.

We must never forget that major public policy decisions are not made on the basis of scientific or economic merit alone - they are made in a political context. While working on reducing costs, increasing efficiency and maximising return on investment, we must work equally hard on generating demand and forging political alliances.

TO REITERATE: our cause is compelling. It is also becoming better recognised.

- As DALYs indicate, visual impairment is a major societal burden, not just to the person blind or impaired, but to their family and their community.
- Existing interventions are highly effective.
- Return on investment is enormous - preventing visual impairment from cataracts and diabetes reaps enormous, readily-demonstrated financial gains.
- These diseases and the visual impairments they produce are invariably associated with premature death.

Each of us must leave this Assembly with a mission and a quest: to determine, for our own particular milieu,

- How to obtain the greatest impact on blindness prevention at the lowest possible.
- How to realistically position eye health and eye care within the broader health concerns of our region and nation.
- How to bring existing infrastructure and resources (health, nutrition, education and social services) to bear upon the problem.
- How to balance competing demands on resource allocation, even within the blindness arena.

Our Agency's president, Alan Johns, reminded us in our newsletter of a critical reality: "we need to be a constructive force in recognising the realities of health planning economics as it promotes eye care programs."

AFFORDABLE EYE CARE-MOBILISING RESOURCES IN LATIN AMERICA

Dr JC Silva

The ideological, economic, political, social and ecological changes that have taken place at the global level are making a strong effect on the delivery of health care services.

Most important, however, are the economic difficulties in many countries and the subsequent resource shortage in the public health care sector. These factors have encouraged ministries to reassess the public/private mix of health delivery systems and are stimulating the health personnel of the public and private sectors to obtain orientation in the area of financial planning and resource mobilisation.

Resource mobilisation is a strategy that can be applied to almost any activity in technical co-operation however 2 main areas of work can be identified.

- Eye Care policy and resources co-ordination
- Identification-involvement of public and private resources.

EYE CARE POLICY

Although the health policies are changing day by day, PAHO, has defined certain orientations to the development of health delivery systems.

Definition of Terms

The term "private sector" includes all those organisations and individuals working outside the direct control of the state as, for-profit private companies, or non-profit private organisations. The private sector, therefore, includes individuals and organisations with very different motivations, who cannot be treated as a homogenous group. The category of non-profit organisations is diverse, including international organisations, national voluntary associations and community self-help groups.

It is important to distinguish between the financing and provision of services. Services may be publicly financed and publicly provided. However, private finance may coexist with public provision or public finance with private provision.

The Terms "private sector" and "privatisation" can apply to either financing or provision of health-related activities.

Private for Profit Sector

Three factors are particularly important in the context of the private health sector.

IGNORANCE

The efficiency of the private for-profit market depends on the existence of informed consumer: that is, consumers who are able to choose what health care they want and to judge its quality. However even with a relatively well informed population, customers may not be able to make good judgements about the quality of the care they receive .

UNCERTAINTY

Private health insurance does not usually cover people whose probability of making a claim is high. It will, therefore, protect only a section of the population. In addition, health insurance systems lower the price of health care at the point of use and may result in inefficient utilisation of resources.

EQUITY

In the private market, access depends on ability to pay, either in direct payments or in insurance premiums. Obviously, without a shift of purchasing power, the poor will not have access to more than very basic private services. Therefore expansion of the private sector could be equitable if it permits a ministry of health to shift its resources to the most needy. In practice, we have to ask ourselves whether that strategy is possible for many ministries of health.

Economic theory is not able to give a clear-cut answer to the appropriate mix between public and private sectors. This must be decided on a case-by-case basis. In particular, factors such as the characteristics of the current health system and existing socio-economic conditions must be taken into account, as these determine the feasibility of potential changes in the mix.

Private “not-for-profit” sector

This category is diverse, including international and national organisations, “not-for-profit” agencies and community self-help groups. Government policy towards this category of provision may need to differ substantially from its regulatory concerns with private “for-profit” practice.

Privatisation policies

Privatisation of health services entails the use of government policies to generate or accelerate a shift to private sector provision and financing.

The following give some examples of policies that countries may adopt to change the public/private balance of either financing or provision.

- Finance

- A. **Promote voluntary health insurance:** encourage the population to take up health insurance, either publicly or privately.
- B. **Shift responsibilities to private sector:** NGO sector can be encouraged to play a greater role.
- C. **Supplementary user charges:** increasing the level of non-tax financing in public health services through users fees.
- D. **Financial arrangements to reduce risk of private insurance companies:** offering reinsurance
- E. **Private provision in public facilities:** such as provision of pay beds or special clinics outside of working hours.
- F. **Opting-out:** permitting firms to opt out of compulsory social insurance if they provide a satisfactory alternative insurance scheme.

- Provision

- A. **Contracting out:** government retains responsibility for the service and continues to finance it but provision is undertaken privately.
- B. **Shift responsibilities to private sector:** NGO sector can be encouraged to play a greater role.

- C. **Legislating for compulsory health insurance:** a statute ruling that all firms with a minimum number of employees should provide them with health insurance.
- D. **Enable choice of provider:** through provision of health vouchers or reimbursement of private providers.
- E. **Legalising private practice:** repeal legislation prohibiting private practice.
- F. **Support to private practitioners:** through training courses, supply of essential drugs, etc.

The Functions of the Government

Whatever the proportions of public and private involvement in the financing and provision of health services, the public sector has special responsibilities.

1. Regulations

Regulation is considered here in a section of its own because of its importance in influencing the private sector to behave in the interest of national health goals.

Regulations may take the form of:

- **Controlling prices:** important in preventing excessive payments by those vulnerable to exploitation, and in limiting profits of the private sector.
- **Controlling quantity and distribution:** for example, controlling location to promote access to underserved areas; controlling the investment decisions of the private sector (e.g., construction of the facilities and purchase of equipment); and may include controlling the allocation of money for health care.
The ability to channel funding provides the opportunity to offer incentives, to implement priorities, and is often a more effective means of regulation than legal controls.
- **Controlling quality:** for example, strengthened licensing inspection of personnel and facilities. The professional associations are often given monitoring responsibilities.

2. Co-ordination of actions

The economic and legal authority of ministries of health, often needs to be strengthened in order for them to regulate the health delivery systems. This will enable an effective co-ordination of efforts at the national level and a constant monitoring of progress in achieving the goals of the national plan for the Prevention of Blindness and Eye Care.

A regular working procedure for the co-ordinating body must be established to ensure its active and continuous role in planning and co-ordinating eye care activities.

3. Health Promotion and Protection

The ministry of health must ensure that public health, preventive and health promotion activities are not neglected. Private enterprises outside the health care sector may be able to contribute to these.

Conclusion on Eye Care Policy

Changes in public/private responsibilities, therefore, require a strengthened and expanded role for government, even if the ministry of health share of total health service provision is reduced.

Because of the diversity of the private sector, ministries of health need to think separately about their relationships with the private “for-profit” sector and the private “not-for-profit” sector. In the

case of the former, regulation, including quantity and quality controls, is likely to be important. In the case of the latter, co-ordination and joint planning are likely to be more appropriate emphases.

IDENTIFICATION OF PUBLIC AND PRIVATE RESOURCES IN EYE CARE

Scientific technical resources

A number of achievements have been made in this area, particularly in the last decade. A group of eye doctors in the region decided to expand their professional practice, shifting from a strictly doctor-patient focus to an institution-community focus in order to provide greater coverage and deliver eye care to a larger proportion of the community in Latin America and the Caribbean. At the regional level, efforts to motivate new leaders must continue in order to increase the number of programs.

Technical and financial resources

During the past three years (1991-1993) PAHO's regional program has joined the endeavour of the Pan American Association of ophthalmology (PAAO), the International Agency for the Prevention of Blindness (IAPB) and the numerous international, sub regional and indigenous NGO's to develop integrated eye care and PBL programs.

Administrative resources

In the future it will be necessary to implement appropriate management and administration courses that will make it feasible to develop self sustainable programs.

Information resources

Communicating effectively about health is a difficult task. Health information is often complex and technical. Careful planning and development of health communication programs are important to avoid undesirable effects, and to assure that communication activities have the greatest potential for success. It is essential to identify the appropriate resources in both mass media and informal information to develop adequate information and health promotion programs.

Community resources

- Community Participation: The community must intervene in the economical, social, cultural and political aspects of their lives to reach social and economical development.
- Economical Participation: Provide resources to develop self sustainable programs, generating commitment, and increase self-esteem.
- Social and Cultural: All programs designed to promote changes in health behaviours and to encourage early detection and prompt treatment of illness must involve community participation.
- Political: It is public pressure that will guarantee that attention is given to prevention of blindness services.

AFFORDABLE EYE CARE

CONCLUSIONS AND RECOMMENDATIONS - from regional workshops

The cost of eye care is a major determinant of avoidable blindness.

The aim is to provide safe and effective prevention of blindness services to all groups of society and all people of the world, at a cost which is affordable and sustainable.

Three separate costs should be considered. First the cost involved in PROVIDING a sustainable eye care delivery system. Second the cost incurred by the CONSUMER in accessing eye care. Third the lost OPPORTUNITY cost due to visual handicap.

A PROVIDER'S COSTS

The costs involved in providing eye care can be summarised as capital or one time costs, and recurrent or running costs.

Capital Costs

- buildings
- equipment
- instruments
- vehicles

These "one time" costs have a defined life, resulting in additional capital costs for replacement, from time to time.

Recurrent or running costs:

- salaries
- training
- medicines
- spectacles/IOL's
- sutures
- transport costs
- overheads, etc

B CONSUMER'S COSTS include:

- fees for service
- transport
- food
- accommodation
- loss of income to patient and/or escort

C OPPORTUNITY COSTS

The lost opportunities for employment impact on:-

- the individual
- the family
- society as a whole

STRATEGIES TO REDUCE COSTS

- 1 Standardisation of essential buildings, equipment and instruments can result in lower purchase costs, standard maintenance and replacement.
- 2 Purchase of appropriate equipment at lowest prices can reduce the capital costs.
- 3 Appropriate technologies for local eye drop preparation, spectacle manufacture, IOL production and suture manufacture all result in lower costs making treatment more affordable.
- 4 Increased efficiency, and particularly the volume of surgery, results in lower per capita service delivery costs.
- 5 Standardised preferred practice protocols and guidelines will assist in streamlining services and increasing productivity.

RECOMMENDATIONS

- 1 IAPB is requested to set up an information service regarding the development of low cost technologies for eye care delivery.
- 2 National committees are encouraged to develop standard lists of essential equipment, instruments, medicines and other consumables for prevention of blindness programmes which are appropriate to their national circumstances.
- 3 National prevention of blindness committees should act as advocates with the ministries of health in order to ensure that health budgets contain a component for prevention of blindness activities.
- 4 National committees are encouraged to monitor costs of interventions in relation to Gross Domestic Product or other economic parameters.
- 5 NGO's have an important role to play in mobilising resources to assist national committees in establishing and strengthening prevention of blindness activities.
- 6 Operations research into the costs incurred by the consumer and mechanisms to reduce these costs are required in different regions of the world. WHO collaborating centres and INGO's are encouraged to collaborate in this research.
- 7 In providing eye care to all sectors of society and particularly cataract surgery, programmes

are encouraged to subsidise services for low income groups utilising resources available from high income groups of patients.

- 8 Individual programmes involved in prevention of blindness activities are encouraged to develop costing systems, particularly for cataract surgery and glaucoma which can be monitored year by year in order to promote greater efficiency.

ACCESSIBLE EYE CARE

ACCESSIBLE EYE CARE AS PART OF PRIMARY HEALTH CARE AND COMMUNITY BASED REHABILITATION

Dr D Yorston

A comprehensive prevention of blindness programme must make eye care accessible to those in greatest need. These are generally the people at the end of the track who are hardest to reach.

In this paper I will discuss the contribution of eye workers whose task it is to live and work at the end of the track - primary health care and community-based rehabilitation field workers.

In poor countries, the excess burden of blindness is attributable to a vicious cycle of ignorance, impoverishment and isolation.

This can only be broken by an intervention that is affordable, appropriate, and, above all, accessible, particularly to those people who are in greatest need, who are often the most remote from established eye care services.

PHC & CBR

We all know what we mean by primary health care. The problem is that we all mean something quite different! For the purposes of this paper, I wish to define what I mean by a primary health care (PHC) field worker and a community-based rehabilitation (CBR) field worker.

- **PHC fieldworker:** Someone who works in their own village or community to improve the health of the people living in that community. They will be involved in health education, immunisation, and mother and child health.
- **CBR fieldworker:** Someone who works in their own village or community to improve the care and rehabilitation of disabled people within that community. They will work with a disabled person and their family in order to assist the disabled person to achieve the maximum possible degree of independence, and quality of life.

PHC is suitable for preventive activities

We are all aware of the contribution made by PHC to prevention of blindness, particularly in the field of primary prevention.

For example, it is almost inconceivable to consider a plan to reduce corneal scarring from Vitamin A deficiency that does not rely on PHC workers. Immunisation against measles can have a dramatic effect on the incidence of corneal ulceration from Vitamin A deficiency. Nutrition education, and possibly distribution of Vitamin A supplements also have a vital role in the prevention of xerophthalmia. All of these tasks are best performed by a PHC field-worker.

PHC is less effective at finding blind adults

However, when we look at the record of PHC workers at abolishing blindness from cataract, I think that with some notable exceptions, there is less to celebrate. I have taught many PHC workers about cataract and glaucoma, but I doubt if I have had more than half a dozen referrals in nine years. Despite their success at preventing common blinding diseases, they are less

effective at identifying and referring patients with cataract or glaucoma, who make up the great majority of the world's blind. The local community often perceives PHC workers as:

- Being mainly interested in mothers and young children;
- Having an emphasis on preventive rather than curative measures;
- Being mainly involved with "diseases".

Unfortunately, this perception may make it difficult for a PHC worker to provide a good service for people blinded by cataract and glaucoma, because

- Cataract and glaucoma mainly affects the elderly
- Cataract and glaucoma cannot be prevented
- Blindness is not seen as a disease, but as a normal ageing process, and therefore outside the mandate of the PHC worker.

What is CBR?

I continued to be frustrated about my inability to train members of a community to identify and refer curably blind patients until I was introduced to a CBR programme. Most of us approach the problem of world blindness from a medical perspective - we want to cure or prevent blindness, and we have less to do with those for whom preventive measures are too late and curative measures inadequate. I had mistakenly dismissed CBR as being important only for the relatively small number of blind people for whom I could do nothing.

In fact CBR programmes have the potential to make a huge contribution to prevention of blindness.

CBR is able to motivate blind people and their families

In Africa the greatest obstacles to cataract surgery are:

- Finding the blind people who need cataract surgery
- Persuading them to come for an operation
- Inadequate resources - particularly a lack of essential supplies, and suitably trained eye workers.

A CBR field worker will know the disabled and visually handicapped people in his community. He will know their families and where they live. Because the disabled are seen as his responsibility, he will be informed by the community of new cases of blindness as they occur.

He is able to spend time with blind people and their families informing them about what can be done for them and persuading them to come for surgery, thus ensuring the best use of the available manpower and materials.

CBR is able to follow-up post-operative patients

Following most cataract operations, the majority of patients, some of whom may have been blind for years, receive very little support from the eye clinic. They are given their glasses and an appointment to return to the clinic. If their vision is 6/18 with their spectacles we congratulate ourselves and go on to the next patient. We have neither the time, nor the training, nor the resources to go to their homes and find out if they have actually been rehabilitated or not. Despite the vision of 6/18, they may still be treated as a blind person by the family, because they have been blind for so many years. They may be confused by their spectacles, and, because

there is no one to encourage them to become accustomed to wearing aphakic spectacles, they stop using them, except on the days they have to visit the eye clinic.

A CBR worker is trained to work with the disabled person's family, and to assist a disabled person to overcome their disability. They are skilled at re-training an elderly person to take advantage of his new vision, while not going beyond its limitations. This adds up to an improved quality of life for the patient and his family. This in turn leads to a better reputation for cataract surgery, and greater acceptability by the community, resulting in more patients for treatment.

CBR is able to reinforce the messages of PHC

The CBR worker can re-inforce the preventive messages of PHC. If a child is blind from vitamin A deficiency, the CBR worker will spend far more time with the child's family than the PHC worker. He will be better able to ensure that the mother knows how to prevent her next child becoming blind for want of immunisation or an adequate diet.

ADAR experience in Rwanda

To show how this works in practice, I want to give some figures from ADAR - the Association for Disabled in Rwanda. The recent terrible events in Rwanda should remind us that unless governments can provide a peaceful environment and political stability, our efforts will come to nothing. I would like to take this opportunity to pay tribute to ADAR's fieldworkers, who, for many years served the people of Rwanda without regard to their ethnic origin, or political affiliations. The lessons we have learned from ADAR will continue to be of immense value long after the world has forgotten the massacres.

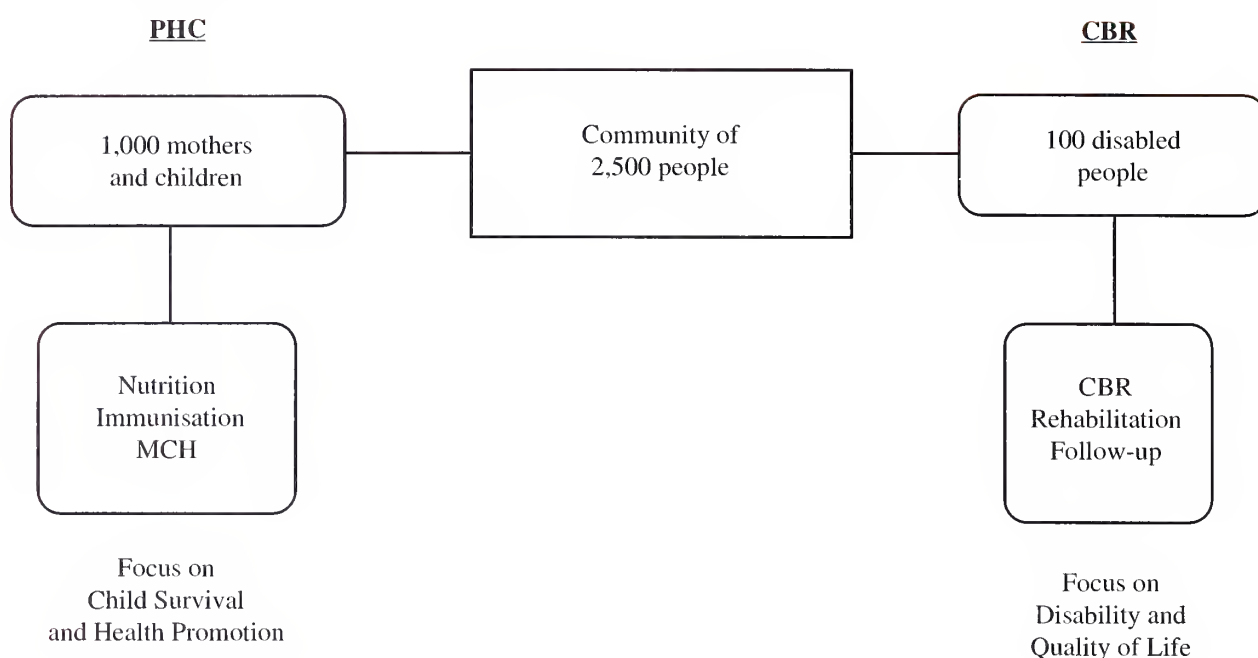
This programme was founded in 1987. Until the beginning of April 1994 it had grown steadily, until it was covering almost 70% of the population. 60 fieldworkers provided CBR services in five different prefectures. The fieldworkers are village people with primary school education. They undergo an intensive three month training during which they are taught about rehabilitation of blind adults and children, identification and referral of disabled people, and the elements of primary health care, particularly in relation to prevention of blindness.

ADAR field workers have identified 5,000 blind people, of whom 2,800 were curably blind from cataract. 1,700 have now had cataract surgery thanks to the efforts of ADAR. ADAR has succeeded in generating a cataract waiting list that ensures that eye surgeons in Rwanda do not have to spend valuable time in screening clinics. Instead they can devote themselves to sight-restoring surgery.

1,420 patients who have had cataract surgery, have received six follow-up visits in their homes. The ADAR field worker who took the patient for surgery returns to ensure that they are wearing their spectacles, and making use of their new sight. In addition the relatives are encouraged not to treat the person as though he or she was still blind. This continuing contact has helped to maximise the benefit of eye surgery to the families of the blind patients.

For the last 2 years, ADAR has also been actively involved in assisting the Ministry of Health in a campaign to reduce vitamin A deficiency, reinforcing the health care messages of the PHC workers and assisting them to distribute Vitamin A supplements.

PHC is mainly concerned with child survival and health promotion



In summary, in a hypothetical village of 2,500 people, there will be approximately 1,000 children and women of child-bearing age, and about 100 disabled people. The overriding concern of the PHC worker is child survival. This will be relevant to prevention of blindness, particularly when it involves preventable conditions that primarily affect children, such as trachoma or vitamin A deficiency. However, the PHC worker is less effective at identifying adult blind patients suffering from cataract or glaucoma.

CBR is mainly concerned with disability and quality of life

The CBR worker is concerned with disabled people, whether or not they are curably or preventably handicapped. Because CBR workers are seen to have a particular interest in blind and disabled people, they are effective at case-finding. Their expertise in rehabilitation and their greater contact with the patient's family ensures that the patients derive the maximum benefit from available treatment. With good co-ordination, they can reinforce the health education messages of the PHC worker.

My conclusion is not that CBR is good and PHC is bad, or vice versa. Rather, I want to say that we need to use the strength of both types of programme in order to have comprehensive eye care that reaches those in greatest need.

I would like to suggest that PHC workers must be trained in the primary prevention of childhood diseases, such as vitamin A deficiency, or trachoma, which lead to blindness either immediately or years later.

CBR workers have a special role to play in the management of adult blindness, particularly blindness from glaucoma or cataract.

If we are to make eye care accessible to the communities at the end of the track, then we must use people from those communities to prevent blindness among their neighbours.

ACCESSIBLE EYE CARE IN AFRICA - MANPOWER DEVELOPMENT IN AFRICA

Dr Hannah Faal

In the last General Assembly held in Nairobi, Africa, the theme of the meeting was "Sustainable Strategies - Agenda for the 1990s". The plenary session on manpower development focused on the training of the secondary level worker - the ophthalmic assistant.

In this Assembly, the theme is "Towards Affordable, Accessible, Appropriate Eye Care" and in this plenary session the emphasis is on "Accessibility" shortening the distance between the patient and eye care provider.

In Africa today that distance is still too wide; the distance between the ophthalmologist and rural populations is still enormous. The often quoted figure is one ophthalmologist per million population in anglophone and francophone Africa (excluding South Africa) and one per 2 million population in Portuguese speaking Africa. Even these few are concentrated in the urban areas, and for various reasons are under-utilised; A situation of "so near and yet so far" for the urban poor - a growing problem in all parts of the developing world.

The numbers of ophthalmic assistants has increased, the average ratio is now 1:200,000 population. Most are posted to and remain at district and regional hospitals providing more accessible care to rural populations.

Though postgraduate training centres for ophthalmologists have existed in anglophone sub-Saharan Africa in Nigeria and six countries in Eastern and Southern Africa, the numbers trained still fall far short of what is desirable. The target of one ophthalmologist per 500,000 rural population means Africa needs at least another 500 ophthalmologists, but less than 50 are trained each year.

Four countries in West Africa and 7 countries in Eastern and Southern Africa have training centres for ophthalmic assistants. Only three countries have set up training programmes for cataract surgeons selecting candidates from experienced ophthalmic assistants. All three countries; Kenya, Malawi and Tanzania are in East Africa.

In its attempt to meet the obvious need for cataract surgeons, the West African Health Community established a technical subcommittee for manpower development.

The committee examined the eye care manpower needs of a unit population of 500,000 and recommended a team of eye care personnel as follows:-

1 ophthalmologist
2 cataract surgeons
4 ophthalmic assistants
1 primary eye care trainer
1 optometry assistant
1 pharmacy assistant

For each of these workers a curriculum was established, selection and deployment criteria developed and standardised facilities and equipment recommended.

It was decided that if the region continued with the 4-5 year training of ophthalmologists, it would never begin to address the cataract backlog problem. Therefore an 18 month training was designed for doctors in ophthalmology which consists of 4 Blocks:

12 weeks basic science and clinical foundations 9 months hospital attachment 4 week community eye health/management module 5 month hospital/regional programme attachment
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The aim is to produce a competent ophthalmologist who can also take responsibility for the eye health and eye care programme of a region of 500,000 population.

The first group of doctors started training in Ghana in 1993 and the second set is due to start in 1994. Hospitals throughout the region with a high patient turnover and an experienced senior ophthalmologist are used as training centres.

For the other members of the regional team, each country has decided to train according to its needs and capability.

In summary, we know what the needs are, what the targets are, and what training modules are available.

What about the end of the track? Who is to implement Primary Eye Care, distribute ivermectin, recruit the cataract blind, carry out all those tasks that truly avoid blindness?

What about the ophthalmic assistants posted to districts taking care of 80% of eye problems and selecting cataract patients?

The challenge today lies in the:

1. Training and support of community based workers
2. Training of regional ophthalmologists to support and supervise the ophthalmic assistants.
3. Training in management skills, to maximise the teams output and efficiency. This may include a manager in the team.

To this end in September, West Africa's professionals from the different cadres, training institutions, and manpower planners will meet in Nigeria to assess the eye care manpower situation and draw up a 10 year action plan. No doubt a resource needs assessment, eg. regional training centre will be part of this exercise. The organisations, agencies and individuals that make up the IAPB are likely to be approached for participation in this 10 year task.

Sub-Saharan Africa is at the end of the global track. The challenge to this assembly must surely be, to access the end of the global track with eye care.

MANPOWER DEVELOPMENT IN FRENCH-SPEAKING AFRICA

Dr S Resnikoff

French-speaking Africa makes up a substantial part of Africa (20 countries), but is thinly populated, with only one hundred and sixty million inhabitants.

The proportion of ophthalmologists is very low, on an average, about one for one million inhabitants, but, the situation varies from country to country: e.g. 1/500,000 in Senegal, and 1/2 million in Mauritania.

It is clear, the problem is not simply a lack of ophthalmologists. It is a more complicated problem:

- First, training is not always adapted to the task workers are required to carry out;
- Second, they do not always have adequate equipment;
- Third, ophthalmologists are generally concentrated in large cities;
- Fourth, in certain countries ophthalmologists are under-employed. (This problem is likely to become more and more important, as national administrations are employing physicians.)
- Fifth, there is inadequate use of eye-care services: the average number of operated cataracts in Africa is about 160 per ophthalmologist per year.

For all these reasons, the Lomé meeting 1990, recommended to give the priority to the training of the intermediate level personnel: ophthalmic nurses and cataract surgeons.

The development of this category of personnel has several advantages:

- The training is shorter, thus cheaper;
- The training is more intensive;
- The personnel adapt well to working outside the cities;
- They are trained to work in a team, so that they can help the ophthalmologists.

Of course the training of ophthalmic assistants is very different from that of the ophthalmologists. It is a practical training adapted to the tasks to be carried out. An important part of the teaching is connected with management and communication techniques.

What strategy should be adopted in French-speaking Africa?

We can distinguish different levels:

- at a regional level : the training of trainers
- at satellite training centres : cataract surgeons
- at a national level : the training in Primary Eye Care.

At the regional level, the training of trainers, requires a team of teachers, teaching materials, and an ongoing evaluation process. It is not reasonable to create many new training centres. The existing centres should be reinforced and developed.

Cataract surgeons cannot all be trained in the regional centres because they need exposure to surgical experience. "Satellites Centres" should be created, which will collaborate with the regional training centres.

Training in Primary Eye Care should be organised at the national level. Each national program should provide this kind of training. It is a difficult undertaking, but it is the only way to reach the patients in remote areas, at the "end of the track".

Accessible Eye Care in Asia - Service Delivery
Thulasiraj D Ravilla, Aravind Eye Hospital
Madurai, India

India and other countries in Asia are characterised by a mal-distribution of eye care services. One of the problems resulting from this is accessibility. The issues relating to accessibility start with the process of creating awareness, motivation and finally delivery of eye care services. The process of creating awareness needs a good understanding of the patient population in terms of health behaviour, literacy levels, economic status, barriers to access and logistics of information transmission. This understanding helps not only in the content, but also in the delivery of the message. Similarly, in delivery of eye care services, while it is necessary to know about the clinical nature of eye diseases in the community it is even more important to know about the barriers to access. These barriers arise because of an urban concentration of facilities, difficulties in travel logistics, lack of information, socio-economic constraints and patterns of health behaviour.

An analysis of the cataract blind as defined by the providers would indicate that a significant portion of them are not even aware that the blinding condition is cataract and that it is surgically curable. This indicates the need for effective health education. Amongst the remaining who are aware of cataract and surgical intervention, a proportion are not willing to have surgery due to reasons such as fear, family's attitude, religious practice, etc. Even amongst those who are willing to have surgery only a small percentage receive surgery while the rest are unable to access the service for want of an escort, not knowing where to go or not having money. It is estimated that only about 5 - 7% of the total cataract population in India receive surgery in any given year. An operations research study¹ in 1986 on a sample of 19,260 households from a population of 5 million in Madurai and Ramnad districts of South India showed the following:

Reason for not undertaking cataract surgery	Bilateral blind (n=466)%
No one to bring me to surgery	25
No need or desire for surgery	20
Unable to afford surgery	16
Afraid of surgery	16
No time to attend surgery	14
Do not know where to go	5
Able to see adequately	3
Cataract not mature enough	1

Barriers to Access - distribution of service facilities and logistics:

In India and most of the Asian countries, the majority of the population lives in rural areas, while the eye care facilities are predominantly concentrated in the urban areas. In the process of shift to urban areas, it is usually the young who migrate to earn a living, leaving the elderly in the village. Hence it is common to see villages with a higher proportion of elderly resulting in a higher prevalence of blindness in the rural areas. The data from the national survey² done in India in 1989 substantiates this. The projected prevalence of economic blindness (vision in the best eye <6/60) in the rural areas is 1.62% while it is 1.03% in urban areas. This higher concentration of blind in the rural areas further compounds the problem of maldistribution of services.

This presents problems in logistics with economic implications. Poor road infrastructure and public transport facilities makes travel difficult even for sighted persons and for the blind it presents a major problem. This is especially true in the mountainous areas of Nepal and India wherein, several days of trekking are involved to reach the nearest road.

Barriers to Access - socio economic:

In most of the countries in the region eye care and cataract surgery is provided free or at a nominal charge in the government and voluntary non-profit hospitals. While the eye care services are free, the patient has to incur substantial expenses to access this free eye care. There is the cost of travel to the hospital. Quite often the patient requires a person to accompany them because of the visual handicap. For this accompanying person, in addition to the travel costs there is lost wages for the time away from work. In many situations they will need to buy food, medications and spectacles. The sum total of these costs can be substantial for people and this often inhibits the number of patients who can come for cataract surgery.

Barriers to Access - information:

The operations research study¹ showed that in the control population the awareness about cataract and surgical intervention is less than 8%. While there is an increasing awareness with the advent of national programmes to control blindness and the use of television, there is still likely to be a significant portion of the population unaware about cataract and its treatment. This will need to be addressed in a very effective way through mass communication and effective intervention strategies.

Amongst those who know about the condition there are misconceptions. Some believe they have to wait till the cataract is mature or "ripe"; others believe that they should be operated in the summer months or monsoon season. Some of them do not know where to go for the services or how much it will cost them. These misconceptions and lack of information leads to delay in accessing surgery and often not accessing service at all.

Barriers to Access - health behaviour:

Traditional practices, beliefs, the patients fatalistic attitude towards blindness, lack of faith in the intervention and, fear about the surgical procedures influence the behaviour of the patients leading to low levels of acceptance. Health education, individual counselling and using operated patients as motivators, can help overcome this problem. In the operations research study¹ it was seen that aphakics had the greatest motivational impact in influencing the cataract blind to accept surgery.

Delivery of Eye Care Services at Aravind Eye Hospital³:

Aravind Eye Hospital, has established a model for providing accessible eye care to a population of over 15 million. In 1993 about 660,000 out-patient visits, 54,000 cataract surgeries (about half of them with PC-IOL implants) and 15,000 other eye surgeries were delivered through three eye hospitals, 797 screening eye camps and a network of village volunteers. In addition 20,000 school children were screened for vision impairment.

Such a large volume of services at an acceptable quality and affordable cost has become possible through a strong base hospital approach and constantly considering patient's circumstances and expectations. There are three hospitals located at Madurai (900 beds), Tirunelveli (400 beds) and Theni (100 beds). In all the hospitals over 60% of the beds are assigned for treating free patients. While the paying patients come to the hospital on their own, over 60% of the patients admitted to the free hospital are recruited through eye camps. The strategies used for attracting patients to eye camps and the free hospital are:

- * Case finding services at community level through eye camps and village volunteers
- * Active community participation
- * Partnership with the community for all outreach activities
- * For surgical patients from eye camps free food and transportation to hospital and back.
- * Free surgery and stay
- * IOLs at low cost (\$15)
- * Active use of aphakics as motivators
- * Patient education through patient counsellors at the hospital and through posters and banners at the eye camps.
- * Quality assurance and focus on patient satisfaction
- * Efficient use of resources

These strategies have helped in providing a large volume of services in a cost effective way. Tables 1 & 2, give details of resources employed in 1993 and corresponding patient load. Strategies that pay attention to the problems of access can result in effective demand generation and when this is matched by cost effective service delivery systems, one can make a major impact on the prevalence of needless blindness from cataract.

Table 1

Resouces employed in 1993	
Resource	Quantity
Full time medical staff	30
Residents & Fellows	47
Paramedical staff	308
Non-clinical staff	304
Total staff	689
Paying beds	550
Free beds	850
Total beds	1,400
Budget (operating costs)	\$1.3 Million

Table 2

Aravind's Performance in 1993			
	Paying	Free	Total
Cataract (non IOL)	2,281	26,508	28,789
Cataract (IOL)	15,569	9,726	25,295
Other surgeries	10,129	5,168	15,297
Total surgeries	27,979	41,402	69,381
OP Visits (Hospital)	293,149	160,592	453,741
OP Visits (797 Eye Camps)		204,102	204,102
Total OP Visits	293,149	364,694	657,843

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ACCESSIBLE EYE CARE

CONCLUSIONS AND RECOMMENDATIONS

A major determinant of blindness is the accessibility of eye care services to all sectors of society.

The distribution of blindness, in terms of magnitude and causes, is a reflection of the “distance” between the consumer and provider of eye care be it geographic, political or socio-economic.

The aim is to make essential eye care accessible and available to
to all sectors of society in all parts of the world.

STRATEGIES

1 Groups of society which are particularly disadvantaged, in terms of accessing eye care services, need to be identified and targeted for priority action.

The over 50's and under 5's, living in poor communities
(rural or urban slum)
are those at greatest risk and in greatest need.

Women access services better than men.

2 The factors which “distance” the consumer from the provider need to be identified, and specific strategies developed and implemented to overcome these barriers.

BARRIERS TO EYE CARE

On the side of the consumer

Awareness

- where and when to go

Poverty

- cost of accessing service

Fatalism/fear

- attitude to disease and disability

Physical distance

- rural populations

On the side of the provider

Manpower

- adequate numbers of staff

- appropriate training

Materials

- facilities for service delivery

Management

- organisational support

Motivation

- incentive/reward systems

- 3 Services need to be developed to meet the requirements of the consumer. The consumer is looking for a service which is of good quality (safe and successful), affordable, and accessible in terms of time and distance whenever they need it.

Consumer's Requirements

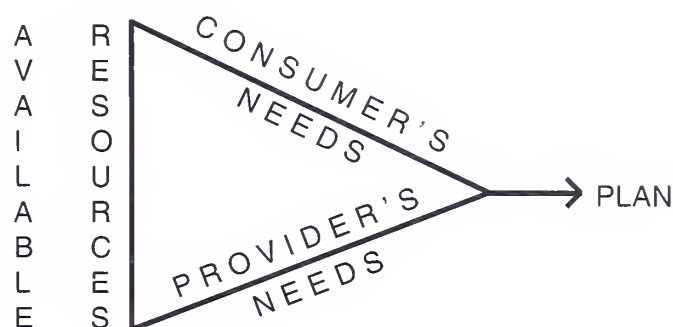
Affordable - inexpensive
Available - permanent or regular
Accessible - near
Accountable - safe/successful

- 4 A service also needs to be developed which meets the needs of the provider. The provider is looking for security (political and financial), good working conditions, and acceptance by the community which he serves and by his professional colleagues.

Provider's Requirements

Security - political
Salary - financial
Satisfaction - good working conditions
Status - career development opportunities

- 5 The consumer's needs and the provider's needs must be taken into account and balanced with the available resources when planning and developing eye care services.



Recommendations

The recommendations are discussed under 4 headings.

Recommendations to:

- A Improve AWARENESS.
- B Create BETTER QUALITY OF SERVICE.
- C Decrease COSTS to the consumer.
- D Overcome the DISTANCE barrier.

A AWARENESS

- A1 There is need to make disadvantaged groups aware of how to avoid blindness through health education as part of primary health care activities.
- A2 Training material on eye care is required for all cadres of health care workers. The training material needs to be developed in the appropriate languages.
- A3 Curriculum in community eye health should be included in the training programme of all ophthalmologists.
- A4 Symposia on prevention of blindness should be included in ophthalmological congresses (national and international).
- A5 The IAPB at global and regional level is requested to promote legislation which will reduce blindness from injuries and other environmental factors.
- A6 The IAPB at global and regional level is requested to further develop its advocacy role with ministries of health.
- A7 In order to promote awareness concerning the magnitude and causes of blindness further data collection is required in some parts of the world (particularly Eastern Europe and Latin America).

B BETTER SERVICES

- B1 Regional committees of IAPB and national committees of prevention of blindness should promote training programmes at regional and national level to ensure adequate eye care personnel for primary, secondary and tertiary levels of care.
- B2 NGO's are requested to support these training programmes and to assist national programmes in equipping trainees at the end of their courses.
- B3 Workshops for eye care personnel and programme managers on the "Management of Eye Care Services" are to be encouraged at regional and national level.
- B4 In order to improve the quantity and quality of service, mechanisms for evaluating and monitoring outcome, need to be developed and implemented. This particularly applies to cataract surgical services.

- B5 Ongoing surveillance of the causes of blindness is required in individual countries in order to adapt programmes to the changing patterns of blindness over time. This particularly applies to visual loss in children and to communities living in urban situations.

C COST

(See recommendations on Affordable Eye Care.)

- C1 Operations research is required to determine acceptable mechanisms for cost recovery for eye care services.

D DISTANCE BARRIER

- D1 Priority must be given to developing eye care services for rural populations and disadvantaged groups in urban slums.

- D2 IAPB and NGO's are requested to give priority to countries recovering from the turmoil of civil war.

- D3 Individual programmes are encouraged to promote primary eye care as part of primary health care services while at the same time ensuring that secondary level eye care (especially cataract surgery) is permanently available close to where people live.

APPROPRIATE EYE CARE

**APPROPRIATE TECHNOLOGY IN OPHTHALMOLOGY,
EXPERIENCE IN AFRICA
Dr HC Koppert**

The causes of blindness in the northern, industrialised part of the world are mainly situated in the posterior pole of the eye, while the causes of blindness in the southern part of the world are located in the anterior pole. Thus, the differences between North and South are, regarding the causes of blindness, comparable with the anatomical difference between the posterior and anterior pole of the eye. Many forms of blindness of the anterior pole can be prevented or cured. This is not the case with blindness in the posterior pole of the eye.

Africa is a continent of contrasts and diversity. In some parts the third world is just around the corner from the first - the first and third are neighbours - with the ophthalmological extremes of famine and phacoemulsification.

For obvious reasons, the majority of ophthalmologists and health planners are concentrated in urban areas. There is a constant influence from the medical-industrial companies which attempt to put high technology and sophisticated equipment in health-budgets.

In rural areas there are often no funds for basic supplies such as tetracycline eye-ointment or suture material. Improvisation becomes a necessity when the electricity supply stops, or the cryo-gas bottle is empty, or the autoclave breaks down or the instruments are damaged.

Fortunately ophthalmology is more flexible and adaptable than other branches of medicine.

Nothing gives more satisfaction than operating with perfect materials. I have to emphasise that I'm not advocating second choice instruments, but optimal, appropriate instrumentation.

Examples

- Everywhere in Africa local blacksmiths are able to construct tweezers for the epilation of eye-lashes for trichiasis.
- Projects to prepare eyedrops locally are established in Ghana, Tanzania, Kenya, Sierra Leone, Zimbabwe, etc. One must maintain sterility and quality control.
- In Africa the breakable carbonsteel razor blade is still for sale in the market. It is also possible to make knife blades from modern non-breakable razor blades.
- A break-through in the local production of suture-material has been made. Atraumatic sutures are expensive, 50% of the costs for cataract-extraction is spent on suture-material. Different kind of sutures can be made locally: silk, nylon, vicryl, vanadium-steel wire.
- The Kuruvilla-stand, (the so called "iron-man",) is used to obtain ocular hypotony after retrobulbar anaesthesia. A good invention from the South, it is also valuable for the North.

- Numerous instruments lie useless in cupboards. Many are easy to repair. Small scissors are vulnerable at their joints, where rust forms. These joints can be cleaned with a sparking-plug-brush, fine sandpaper and in the worst cases with oily rust-remover. Re-sharpening of scissors is possible with a small whetstone.
- Solar energy makes it possible to operate with bright light; expensive but useful.
- Autoclaving is best, but Cidex disinfection is also useful.
- Betadine 1% is used in ophthalmic surgery to clean the eye, the eyelids and lashes pre-operatively. Then use “cling film” from the kitchen to cover the eyelids and eyelashes. This material can be put in the autoclave for sterilisation.

There are many inexpensive yet effective and appropriate techniques. Where resources are limited it is essential to keep technology simple, while trying to maintain good quality services.

**APPROPRIATE TECHNOLOGY FOR EYE CARE
EXPERIENCE IN ASIA
Dr R Pararajasegaram**

In the choice of technology, ophthalmologists have a societal responsibility to ensure that the limited resources available for eye health yield the greatest benefit to the largest number in the shortest possible time.

INTRODUCTION

The Asian region, comprising the two largest regions of WHO, has a population of over half the world total and a blindness prevalence that represents two-thirds of the global burden of blindness and visual impairment.

The countries range from the largest (China) to some of the smallest, and from the richest (Japan) to some of the poorest.

In most countries where blindness and visual impairment are major public health problems, national programmes are in place, with identified focal points in ministries of health. The integration of primary eye care with primary health care is the basic strategy adopted in these national programmes. Such a strategy is considered the most appropriate if equity in eye health is to be achieved. It also ensures affordability and accessibility of essential services, and includes, besides clinical care, activities in prevention and in eye health promotion and protection, as well as, where appropriate, rehabilitation.

Thus, national programmes based on such concepts of integration provide a good starting point for a discussion on Appropriate Technology. Medical technologies comprise drugs, procedures (therapeutic and diagnostic), devices and equipment that are directly related to the care of patients. Health care technologies in a public health sense would also include interventions addressing community health problems.

In this paper, I will discuss the scope of technology as applied in a public health setting, specifically in the area of eye care delivery. I will illustrate such applications in the Asian context with a few examples.

TECHNOLOGY AND EQUITY OF CARE

The rapid proliferation of eye care technology and the consequent increase in costs pose not just an operational and economic dilemma, but also an ethical one. The dilemma is whether we do what is ideal for the few (privileged persons) or do what is acceptable and needed for the many.

Even if infinite resources were available, there would still be a dilemma in a number of developing countries, especially in the rural areas, which comprise 60-70% of these countries. In these areas, medical technology may not be usable or sustainable, due to factors such as errant power supplies, lack of maintenance, or difficulties in replacement.

The whole question of the appropriateness or otherwise of technology has therefore to be seen from a larger perspective, other than just the initial capital cost.

Appropriate health technology has been defined as methods, procedures, techniques and equipment that are scientifically valid, adapted to local needs and acceptable to those who use them and to those for whom they are used, and that can be maintained and utilised with resources the community or the country can afford.

While cost-effectiveness is an important consideration in the choice of technology, it should remain subordinate to considerations of safety and effectiveness.

Thus, the real challenge is to achieve the best eye health care that the nation can afford and sustain for the foreseeable future. For example, IOL versus no IOL will continue to be a real issue at some levels of society unless the costs of these new interventions become affordable for most of the population.

EYE DROPS AND SPECTACLES

A large and growing number of fundamental technology requirements for eye care in developing countries (eye drops, spectacles and now cataract surgery consumables such as sutures and IOLs) are already being met through local manufacturing.

Expansion of local supply capabilities in developing countries can sometimes be challenging, but still well worth considering in comparison to frequent shortages or waiting for pharmaceutical/optical industry development.

The local preparation of eye medications, pioneered by CBM and supported by WHO through the publication of a preparation manual, represents a step in this direction. Countries such as China, Nepal, Myanmar and Sri Lanka are examples of such appropriate technology development.

The production of low-cost spectacles and low vision devices at affordable prices is yet another project activity that has had a meaningful impact on prevention of blindness programmes. The contribution of HKI and CBM in these endeavours is noteworthy. Such projects are in operation, for instance, in China, Nepal, Viet Nam and Thailand.

CATARACT SURGERY - LOW-COST TECHNOLOGY

The largest number of innovations and introduction of low-cost technology have occurred in relation to cataract surgery.

The classical eye camp in the Indian subcontinent is a good example. When adequately controlled and well managed, in accordance with published guidelines, it has permitted the restoration of vision in a number of persons who would normally not have access to surgical care. The need for quality assurance in these eye camps cannot be overemphasised.

The outreach screening camps and the static facility surgical approach have proven to be a significant improvement on the outreach eye camps for surgery. This development needs to be encouraged and supported.

Other areas for cost containment through low-cost technology include innovative approaches to suture development, cryo-machines, etc. In the present overwhelming climate of high technology, the professional acceptance and use of such innovations is limited to the initiated few.

Technology transfer is the process of ensuring the wide application of scientific discoveries and of methods, procedures, techniques and equipment that will promote health and socio-economic development. The concept includes the export/import of technology and its exchange among countries. This has particular relevance to the area of intraocular lens production.

It is well known that the private sector, and not necessarily a commercial enterprise, has an undisputedly better record of efficiency and cost reduction than does the public sector in general, especially for technology-related initiatives. Such private sector entities are driven by the value that people who can afford to pay can be persuaded to place upon the product that is produced. That this is true of the IOL produced at the Aurolab factory at Aravind has been amply demonstrated. This is an example of a positive response to an opportunity to serve public interest even where the rewards are generally intangible.

The public health benefits from improving or introducing local supply capacity include more effective and lower-cost interventions for priority problems such as cataract-related blindness. Projects to improve local supply also increase local interest and participation in eye health care, and help stimulate appropriate technology development in developing countries.

An area which requires further development in developing countries embarking on the production of IOLs and other devices is effective regulatory mechanisms and testing capability. Initiatives have been taken by NGOs such as the Fred Hollows Foundation, in conjunction with WHO, to explore possibilities not only for standardising specifications, but also to develop certifying mechanisms by national regulatory bodies, as well as intergovernmental and non governmental agencies.

DIAGNOSTIC TECHNOLOGIES

In the area of diagnostic technology, two areas are of interest in the context of blindness control.

The simplified grading scheme for trachoma, introduced a few years ago, has provided a simple, applicable tool for the identification of sight-threatening trachoma in communities. The advantage of this grading is that it can be used by paramedical personnel following a short period of training. The WHO simplified grading method has been used in countries such as Myanmar, Nepal, Viet Nam, China and some of the South Pacific islands. This development has been supported by The Edna McConnell Clark Foundation.

Innovative approaches for vision screening in children have been found useful in some countries in India. For instance, DANIDA-supported programmes have introduced the "Teacher trained for screening" methodology. Studies have shown a high degree of sensitivity and specificity of the method, which has relieved ophthalmic assistants from this task. In Sri Lanka, "Students trained for vision screening" have been employed in similar activities. Such innovative approaches need to be frequently evaluated to ensure that the delivery system is not overloaded through a number of false positive cases, which may be counterproductive.

In conclusion, it is necessary to understand that scientific soundness and validity underlie the

basic characteristic of technology. Appropriate technology is thus not second-class technology. It is as safe and efficacious as any other technology, and the outcomes of its use are acceptable and comparable with those of more sophisticated technologies.

We should be careful not to succumb to the pressures of the market place if our objective is to do the greatest good to the largest number in the shortest possible time.

**APPROPRIATE TECHNOLOGY FOR EYE CARE -
INTERFACE IN EASTERN EUROPE.
Mr T ffytche FRCS, FRCOphth**

The map of Eastern and Central Europe changes daily, but at least now more is known of eye care services in this region. Five years ago there was ignorance of what was going on, information was politically biased as were statistics, and it was impossible to obtain a true picture of conditions. Yet here were countries with long medical traditions - a century ago in Europe the West looked to the East for leadership and guidance in ophthalmology. Today some of these countries are developed, others developing, but many are "de-developed". They are proud nations with familiar political problems - ethnic minorities, religious persecution, and national rivalries, exemplified by the tragic civil wars in the Caucasus and Balkans. Slowly and encouragingly some of this pride and prejudice is being replaced by an honest realism, but there is a long way to go.

Because of these many rivalries, some of which may even affect eye departments, there is a need for independent, neutral, unbiased observers to speak for and to these countries, acting as advocates and catalysts for change. For my part information has been derived from many personal contacts and visits, from access to files of other associations with interests in this region, notably ORBIS, and from two series of OEAA¹ questionnaires sent to ophthalmic post-graduate centres in 1991 and 1994. The response has been reasonable with 60% replies, although no communication has been received from the Caucasus region.

The questionnaires asked details of the population, the number and distribution of ophthalmologists, their training programmes and the current problems with eye care, referring particularly to shortages of medications, equipment, books and journals. Confidentiality was promised and has been preserved.

The picture that emerges is one of confusion and disillusion, and for several countries post-communism is worse than communism. Low budgets mean many wants and needs, but in general, countries bordering on Western Europe are better off, and there has been an admitted improvement over the three years between the two questionnaires. Not surprisingly there have been impassioned pleas from both sides in the civil war zone in former Yugoslavia - something that will need a response from the IAPB.

The current problems can be summarised under three headings:

1 Finance

Many countries, particularly those bordering on Russia, have Rouble-based economies, and some, notably Ukraine, have even had to devalue against the rouble. There is therefore little purchasing power for departments or individuals outside their own country. Salaries are low and there is often no incentive to work harder, since wages are the same for doctors irrespective of their skills or industry, a "brain drain" is inevitable.

Several hospitals rely entirely on outside donations and, for financial reasons, many cease work in the afternoon.

There are few health insurance schemes and patients are frequently asked to pay for drugs and IOLs.

- 2 Equipment
There are widespread shortages of medications and basic instruments, particularly in the more Eastern regions. There is a great demand for highly sophisticated equipment, as symbols of status, but there are few facilities for repair or servicing, and the "westernising" of the Carl Zeiss (Jena) products will increase problems for many countries.
- 3 Teaching and Training
Most responses to questionnaires emphasised the lack of Western journals and textbooks and the limited access to foreign travel to attend congresses such as the current one.

CONCLUSIONS

In an area where old systems are disintegrating, often what was best has disappeared and what was worse remains. There are no real manpower problems but there is little specialisation and in several countries only 15% of ophthalmologists actually perform surgery. The concept of blindness prevention is lacking in most areas, with doctors preferring to concentrate on cures, many of which can be patented.

The situation at present is near to chaos and it is laudable that the IAPB has already set in motion some actions to help rectify it. In the short term a subcommittee needs to be set up to help collect and co-ordinate information. The problem of what needs to be done when the Balkan war ends should be addressed urgently.

In the longer term there has to be a rationalisation of distribution of appropriate aid, when it becomes available. Already there are good examples of systems in existence, such as the support from Scandinavian ophthalmological societies for the Baltic States and the development of Lions Clubs in Central and, to a lesser extent, Eastern Europe.

Teaching and the distribution of training materials needs co-ordination, and the example set by the American Academy is to be commended. Journal schemes, along the lines of those introduced by OAEE, Smith and Nephew, Alcon and Highlights need to be expanded, and training programmes such as those undertaken by ORBIS and OAEE should be encouraged. There is a need for sponsorship of young ophthalmologists to visit foreign eye units and the concept of "twinning" needs to be exploited. Support is particularly important for national prevention of blindness schemes, following the excellent example set by IEF in Bulgaria.

It is entirely appropriate that the IAPB should take up this challenge, as it has already done in other parts of the world. There are no easy solutions and we must guard against false promises. It is impossible to predict the future in this volatile region, but, unlike Africa and Asia, the problems are potentially soluble, and one only has to look around the city of Berlin to see what can be done in a relatively short time, given the right will and resources.

1. Ophthalmic Aid to Eastern Europe

**APPROPRIATE OPTICAL SERVICES
LOW-VISION SERVICES AND SPECTACLES
Janet Silver, M.Phil., FBCO, FBIM**

Background

Good data on the incidence of visual disability are difficult if not impossible to find, although there are some reliable population-based studies of prevalence from some countries (Faal et al 1989). In the UK, the prevalence of a registerable disability is 1:60 (Blind and Partially Sighted People, RNIB, 1991), people are registerable if visual acuity is less than 6/18, or visual field is less than 10'.

The World Health Organisation meeting on Low Vision (Bangkok 1992) accepted as a working definition :-

"A person with low vision is one who has impairment of visual function even after treatment and/or standard refractive correction and has an acuity of less than 6/18 to light perception or a visual field of less than 10' from the point of fixation, but who uses or is potentially able to use vision for the planning or execution of a task."

This definition assumes that the subject has appropriate spectacles, and any vision-improving surgery such as cataract extraction has been performed. We know that this is frequently *not* the case, therefore some predictive numbers in this paper ignore those conditions. It is suggested that by the end of the century the world population will be 6,000 million. If we extrapolate from the UK prevalence, there would be 100 million visually disabled people in the world in five years time. It is well understood that in countries like the UK at least 70% of all visual disability occurs in people over 60 years of age and is caused by the degenerative disorders associated with age.

In the developing countries, life expectancy is less, but data suggests that the prevalence of visual disability is considerably higher. As literacy and understanding improves so does life expectancy, so we can expect an increase in the prevalence of age related cataracts, macular degeneration and presbyopia. Optical services are now in short supply in some countries, and there is likely to be a considerable increase in need for services in the future.

It is clear that we are grappling with a huge problem. Many people retain useful vision, but find everyday tasks beyond their capacity because they do not have access to spectacles or low vision aids.

No country can claim that every individual who might benefit has no difficulty obtaining suitable spectacles at reasonable cost. Even in countries where services are well developed, many people with low vision are unaware of the potential benefits of low vision aids. (Cullinan 1976)

Inexpensive Spectacles

Ideally spectacles should be obtained as the result of a careful refraction followed by accurate dispensing, producing a comfortable frame and correctly centred lenses. In practice many presbyopes find that they can manage print with simple off-the-shelf spheres, which are self

selected. These are available in most countries retailing at between \$5 and \$20. Powers are available up to +4.00 dioptres, and may be in bifocal form. A common type is a moulded half-eye which may cost as little as \$1 when purchased in bulk. Ready-made spectacles are usually geometrically centred, typically with 66 mm between the optical centres; an average interpupillary distance for a woman reading at 30cms is 60mm. This is often well tolerated but may create headache or diplopia.

There remains, however, a considerable problem in obtaining negative and aphakic powers, especially in children's sizes where a 'near enough' fit may not be available, and weight is an important factor in tolerance.

Low Vision Aids : Types and Costs

Conventional low vision aids are available in wide variety. In developed countries a sophisticated low vision clinic will hold a number of alternative aids of each type including hand and stand magnifiers ranging from 3 to at least 76 dioptres, spectacle magnifiers to around 50 dioptres, and telescopic lenses to perhaps 10x; others include electronic magnifiers, text enlargement systems for computers, image intensifiers etc..

Each type of device has advantages and disadvantages.

Group 1. Hand and stand magnifiers, (may incorporate illumination) from 1 to 20x. They cost from \$3 to around \$100.

The market is at present dominated by a few large firms who mass produce good quality, well-presented lenses usually made of plastics materials and aimed to suppliers through Low Vision Clinics.

Main advantage : inexpensive. Main disadvantage: occupies hand(s).

Group 2. Similar lenses to Group 1, but spectacle mounted. Costs vary from \$100 to \$300.

Main advantage : good cosmesis. Main disadvantage: short working space.

Group 3. Hand-held telescopes from 2x to around 10x are available. Originally intended for general use, they have many benefits for the visually handicapped. Cost from around \$50. Telescopic spectacles (monocular and binocular), cost from \$150 to over \$500 dollars

Main advantage : longer working distance. Main disadvantages: appearance and cost. They require expert dispensing.

Group 4. Electronic magnifiers are manufactured in some countries where low vision services are available. Cost from \$500 to \$4,000.

Main advantages : good ergonomics and contrast. Main disadvantages: expensive and not yet portable.

Some countries, have well developed national standards for these devices. Under the Helios programme of the European Community, Handynet, which is a database of aids and services for the disabled, is expected to be available on C-D ROM in member states by the end of 1994.

Low Vision Aids : Theoretical Considerations

Magnification, or rather how it is calculated, is a complex area, where disagreement between experts is commonplace. Of these perhaps the most confusing is the calculation of the magnification of hand and stand magnifiers.

Until recently most manufacturers used the formula $M = f/4$ to derive magnification (when f = the power of the lens in dioptries); However, nowadays most use the formula :- $M = f/4 + 1$. Thus a +20 lens will be labelled as 5x using the first formula, and 6x using the second. To complicate the issue even further, if the lens is placed closer to the object than its exact focal length, the effective magnification is reduced and an accommodative effort (or an appropriate spectacle correction) is required. Some manufacturers design their devices to be used with an unaccommodated eye, others demand the presence of accommodation or an appropriate correction.

Spectacle magnifiers too may be labelled by either method (the more commonly used is $f/4$), however a 5x labelled lens (i.e. 20D) will have very different effects depending on the refractive error of the user. For example an uncorrected myope who normally needs -12.00 dioptries will have an total optical system of (+12.00 +20.00 =) 32 dioptries; material must be placed at (100/32) 3.4 cms. The actual magnification (using $f/4$) will be 8x. But if the user is aphakic, normally needing +12.00, the same spectacle magnifier will produce only 2x (+20.00 -12.00 =+8.00), for use at (100/8) 12.5 cms. In each case the main function of the lens is to focus a near image.

The magnification of telescopic lens systems is calculated differently. Telescopes consist of a series of refracting surfaces usually separated by air. Distant vision telescopes are afocal, and may incorporate a spectacle prescription, or be focussable (when the space between the components is adjusted by the user). For near, plus lenses are incorporated into the objective (front) lens, or added as extra caps; magnification is then calculated on angle subtense as above. Thus a 2x distant vision telescope with a +10.00 cap added to the front will have a working space of 10cms plus the length of the telescope tube typically giving a total of 14 cms, and magnification of 5x.

Closed circuit television systems use an optical system to capture an image which is then presented on a screen. Magnification will depend on the optical system (they are often zoom lenses), the screen size, and the eye-to-screen distance, but vary from about 7x to 50x linear magnification. i.e. at 10x a letter 2mm in height will appear on the screen 20mm high. These devices have the very useful ability to provide a negative image.

The cost of low vision appliances range from the equivalent of less than three dollars for a simple moulded plastic magnifier to several thousand dollars for the top of the range CCTV.

Christoffel Blindenmission (CBM) in Nairobi are producing basic spectacles with spherical lenses. They have also developed an ingenious range of stand, hand and spectacle magnifiers and published plans for these to be produced from readily available materials in local workshops using appropriate technology. At the time of writing, the maximum power available is 28 dioptries in stand-magnifier form. The lenses are either cheap glass imports, or ground from ordinary window glass. The stands are cut from lengths of plastic tubing sold for drainpipes. The cost of the materials alone is negligible, but allowing for personnel, overheads and machinery the total cost of producing one such device is less than \$5 (Spoerer 1994), that is around the same as the cost of producing 1,000 words of Braille. Although few, if any, of the magnifiers would meet the Standard for optical quality; they produce a reasonable image at far lower cost than European devices of similar power.

Standard Snellen charts are constructed on the basis of the elements of the 6 metre line (or its

equivalent) subtending one minute of arc at the retina of the viewer, the whole figure subtends 5'. Other charts have different sizes of individual elements and are viewed from different distances, but the principle remains the same. This principle is well understood and supported. The 'N series' of reading charts use standard printer's typefaces and sizes. They are sensibly constructed and widely available. There is a simple arithmetic relationship between the different sizes and Snellen cards. If the normal reading distance is 25 cms, then when print is moved to 12° cms the angle subtended is twice as large - and in the emmetropic eye +8.00 is required to focus that image, but a -12.00 myope will need -4.00, a +12.00 aphakic +20.00. The actual retinal image size will be similar.

The provision of a low vision aid can often reduce, or even remove the handicap caused by a visual impairment.

Every low vision aid has disadvantages and requires motivation and adaptation from the user. The willingness to use a device of unusual appearance is essential. But given these factors most people with 1/60 or better can be given access to newsprint with simple optical devices.

Low Vision Aids : Clinical Considerations.

In addition to the visual acuity and the specified tasks that the person with low vision needs to manage, it should be understood that there are three factors involved in determining which level of magnifier power is required for a subject,

1. the refractive error [see above]
2. the accommodation
3. the design of the magnifier.

Therefore, to discuss the provision of low vision aids from the point of view of the appliances rather than the clinical assessment of the subjects, inevitably leads to anomalies, inconsistencies and less than optimal help for the subjects.

There is diversity of opinion on what constitutes low vision assessment, which at one level can amount to little more than supervised self-selection from a limited range of simple magnifiers (not including a basic assessment of need for spectacle correction), through to a battery of tests needing as much as two or three days followed by many hours of supervised training after the devices are supplied.

Leading authorities agree that, in addition to full diagnostic data being available, assessment for the prescription of low vision aids should include:-

1. an analysis of the tasks that the patient wishes to perform
2. analysis of the aids and strategies used before assessment
3. refraction
4. establishment of the level of magnification required
5. review of the performance and acceptance of the alternative aids available at the level
6. prescribing
7. illumination requirements
8. instruction
9. follow up as appropriate

Low Vision Services in Europe

Prescribing of low vision aids is one of the responsibilities of optometrists who have developed this work as a special interest, and are working as part of a multidisciplinary team.

In the UK optometrists hold a university degree and complete a further year of supervised clinical training. Within the Hospital service optometrists work as part of the Ophthalmological Team, with full clinical data available. Final responsibility for the patient remains with the ophthalmologist.

Optical low vision aids are usually supplied under the National Health Service in the UK, where any optical device that is considered clinically necessary for social and domestic use is supplied on a 'loan' basis. Aids are recovered and recycled when the patient's needs or vision changes.

Some low vision work is delegated to private practitioners who may be optometrists or opticians working from their own premises or invited into the hospital to supply devices.

In London at Moorfields it has been shown that 80% of all referrals gain long term benefit, (5% merely need refraction and advice on illumination, and a further 5% have insufficient acuity or motivation).

Starting a Low Vision Service

Where there is no well developed service there is a large volume of unmet need. The cost of establishing a comprehensive service is expensive, and therefore a service based on the resources and needs of each country must be the target.

An interim service using simplified methods and a limited range of magnifiers is needed in many countries. Methods must be simple enough to be used by people who have not had the benefit of the long and expensive training required for professional qualifications. It is important that the interim service must not be an end in itself, but it must be established using methods that are capable of expansion leading eventually to optimum services. Each of the steps listed above must be included in modified form, using only a limited range of devices in the early stages. A centre where expert assessment is available could provide outreach services, start a training cascade, and evaluate and audit results. The range of devices available can be expanded to meet identified needs as fully trained personnel able to provide more sophisticated assessments become available.

The obvious choice as a starting point is children. They are accessible, often gathered into special schools, and produce the greatest cost/benefit advantage. Recent research in East Africa has shown that 60% of children in schools for the blind come within the WHO working definition of low vision. The children with significant refractive error had usually been supplied with spectacles. Of the children with low vision 80% could be given access to print from a simple range of low vision aids (Silver and Gilbert, in press). The magnifiers produced by CBM, although to a maximum of only 28 dioptries, proved to be of benefit to 60% of the children helped; the others needed higher powers. If only the ability to use normal school materials is considered, this means that close to 50% of these children now in schools for the blind could be educated with print within the normal education system.

A study to evaluate the modified assessment methods against standard methods study was organised at a school for blind children in Colombia. An initial analysis of the data suggests

that an acceptable level is achievable with the modified methods. Further studies will be conducted with adults.

Steps in Modified Assessment for Low Vision Devices

1. Establishment of required tasks.
2. Examination of existing appliances.
3. Refraction to determine best spherical correction for distant vision.
4. Determination of presbyopic correction.
5. Assessment of level of magnification required.
6. Decision on appropriate magnifier.
7. Determination of illumination requirements.
8. Instructions on use.

A handbook of instructions and a slide teaching set for the interim service are in preparation.

Conclusions

Simple spectacles and low vision aids intelligently prescribed and used can allow ametropes, presbyopes and people with low vision to handle normal materials in a normal environment. More children would stay in open education, adults have access to wider employment opportunities and everyone have greater personal independence. A low cost service is viable. It would use a short training programme for appropriate local personnel prescribing from a limited range of devices most of which can be produced in local workshops. The social benefits in terms of the reduction of handicap are evident, but the economic benefits should make the provision of such services very attractive to Governments.

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APPROPRIATE EYE CARE CONCLUSIONS AND RECOMMENDATIONS

A major determinant of blindness is the dis-equity in delivery of eye care services.

Appropriate can be considered as the combination of effectiveness and feasibility.

$\text{APPROPRIATE} = \text{EFFECTIVE} \times \text{FEASIBLE}$
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The two elements to effectiveness are:

- a) procedure or process
- b) programmatic delivery

The two elements to feasibility are:

- a) complexity of the programme or technology
- b) availability of resources

<p>The aim is to provide effective and feasible eye care services to all sectors of society and all peoples of the world. This will require the development and transfer of appropriate, sustainable technology.</p>
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STRATEGIES

- 1 In order for a technology to be appropriate it needs to be:
 - a) scientifically valid
 - b) affordable
 - c) acceptable to society (consumer and provider)
 - d) sustainable and maintainable.
- 2 In choosing between technologies we need to ensure that the limited resources available, are used to develop eye care services which are appropriate to the whole needs of society.
- 3 Each region and country requires to define what are the effective and feasible strategies relevant to the needs and resources of society in order to develop appropriate eye care services.

RECOMMENDATIONS

- 1 In order to promote exchange of information the IAPB Newsletter should be used to inform members of developments and sources of appropriate technology for eye care.
- 2 The IAPB, both globally and regionally, should promote the establishment of national prevention of blindness programmes in those countries where they are lacking.
- 3 The NGO's are an important resource for the development and promotion of appropriate technologies. The priorities for future action are:
 - a) eye sutures
 - b) intraocular lenses
 - c) eye surgical instruments and equipment
 - d) low vision devices
 - e) low cost portable lasers
- 4 At the regional level IAPB should encourage an exchange of information and opportunities for training of eye care personnel.
- 5 At the regional level there is a need to establish training programmes in the maintenance of ophthalmic equipment and instruments.

OPTIONAL WORKSHOP REPORTS

**WORKSHOP REPORT:
ASSESSMENT OF VISION FUNCTION AND QUALITY OF
LIFE AS PERCEIVED BY THE CATARACT PATIENT**

Chairman: Dr. Leon B. Ellwein

National Eye Institute, Bethesda, Maryland, USA

Dr. Astrid Fletcher

London School of Hygiene, London, England

Mr R.D. Thulasiraj

Aravind Eye Hospital, Madurai, India

The course dealt with the design and application of instruments (questionnaires) for assessing patient-reported deficits in visual functioning and the resultant impact on health-related quality of life. The format of this session included extensive presentation materials and slides on the topic. This mini-course did not follow the consensus and guideline-development format of the other three workshops.

Dr Ellwein introduced the theme underlying the course by referring to the popularity of extracapsular cataract extraction with intraocular lens implantation (ECCE/IOL) in illustrating that traditional clinical measurement of visual acuity is not a surrogate for visual functioning and quality of life assessment. Based on visual acuity, intracapsular cataract extraction (ICCE) with spectacles is equally efficacious, yet it is not favoured by the patient in spite of its lower initial cost.

Dr. Fletcher presented the principles of reliability, validity, and responsiveness as desired psychometric properties in evaluating the performance of quality of life instruments. She presented data obtained from pilot studies at Aravind Eye Hospital to illustrate these evaluation properties.

Mr. Thulasiraj took up the operational implications within an eye services institution, including financial sustainability, of giving greater emphasis to patient expectations and satisfaction with the surgical/medical outcome. He emphasized the need to focus on factors that affect quality from the perspective of both the provider and the patient.

WORKSHOP REPORT:
TRACHOMA CONTROL - OPPORTUNITIES AND CONSTRAINTS FOR
INTEGRATION INTO EXISTING PRIMARY EYE
AND HEALTH CARE DELIVERY SYSTEMS

Chairman: Dr Hannah Faal on behalf of
The Edna McConnell Clark Foundation, USA

Presentations were made by 3 groups of countries:-

- 1 Countries where trachoma is on the decline due to vertical programmes. (**Myanmar** and **Tunisia**).
- 2 Countries where trachoma is on the decline but not due to any specifically targeted measures. (**Pakistan**).
- 3 Countries where trachoma is still a major problem but where there has been progress. (**Tanzania** and **Kenya**).

Each country presented their data on:

- epidemiology
- groups at risk
- patients knowledge, attitude and practice
- current efforts on trachoma control - achievements, failures and constraints
- future plans

In **Myanmar** trachoma was tackled with a well planned vertical national programme; the disease is under control and the programme is embarking on a phase of integration. Tunisia similarly took a targeted approach but the control is faltering at integration in its worst affected areas, with the danger of recrudescence.

In **Pakistan** without any specific measures but due to general improvement in the socio-economic status, trachoma had decreased but is not eradicated and is still a public health problem in some areas.

In **Kenya, Gambia and Saudi Arabia** the worst affected areas have been identified. There is an emphasis on integration into ongoing eye care programmes. Tanzania in addition to its integrated hospital based strategy, has adopted a community based participatory approach which is hoped will ensure a long term control of the disease.

Dr David Yorston presented a comprehensive paper highlighting sustainable strategies for trachoma control based in experiences in East Africa.

The group was informed of two WHO publications on trachoma management through PHC and lid surgery techniques. The draft of a book "Community Support for Trachoma Control" sponsored by WHO/PBL and Edna McConnell Clark Foundation was also presented.

Recommendations:

1 Trichiasis Patients:

- Active patient recruitment.
- Training of adequate numbers of appropriate personnel strategically placed in surgery centres close to patient.
- Standardised lid surgery techniques, guidelines and equipment.
- Organisation for effective delivery of trichiasis surgery.

2 Infected Individuals:

- Community based diagnosis and treatment of infected individuals.
- Use of WHO guidelines for community diagnosis and treatment.
- Use of treatment which would ensure patient compliance considering that the ocular reservoir is in the under 5 year old age group.
- An alternative to the eye ointment regime which seems to work well only in research or vertical programmes should be identified. e.g. azithromycin.

3 Eye Health Promotion and Education:

- Integrated into community based activities.
- Face washing integrated with hand washing taught for control of diarrhoea disease.
- Insertion into schools curriculum.
- Provision of water supply and adoption of economical water management techniques, eg. leaky tin.

4 Co-ordination:

- Control efforts are multidisciplinary and all agencies and sectors should co-ordinate efforts to avoid duplication and achieve cost effective results.

5 Surveillance:

- Identification of disease pockets and any increase in incidence through surveillance.

6 Use of Available Resources:

- Primary Health Care Level Management of Trachoma (**WHO/PBL/93.33**).
- Trichiasis Surgery for Trachoma: The Bilamellar Tarsal Rotation Procedure (**WHO/PBL/93.29**).
- Community Support for Trachoma Control (**WHO/PBL/93.36**).
- Slide sets from **WHO/PBL**.

7 Development of appropriate teaching materials for community participation.

- Teaching material is required which is locally specific in terms of language and other socio-cultural factors

WORKSHOP REPORT:
OPHTHALMIC MEDICAL PERSONNEL IN PREVENTION OF BLINDNESS
PROGRAMMES: THEIR TRAINING AND USE
Chairman: Dr Peter Evans, Joint Commission on
Allied Health Personnel in Ophthalmology, USA

This workshop, the first of its kind at any major international meeting, brought together nine experts in the field of ophthalmic assistants' training and deployment. In addition to reporting on status and problems of their individual regions, the speakers offered suggestions and possible new approaches to improve the accessibility of eye care through better use of the growing and diverse cadres of ophthalmic medical personnel (OMP).

Prof Abiose highlighted the situation in Nigeria where the ratio of one ophthalmologist per one million population is further aggravated by severe maldistribution of the few ophthalmologists who aggregate in the cities. This has led to a concerted effort to reach the large, unserved rural population through integration and redefinition of curricula and tasks of eye care trainers and workers. With at least 80% of Nigeria's blinding diseases preventable or curable, ophthalmic nurses have emerged as the best trainable ophthalmic assistants, a development still meeting with some optometric opposition.

Speaking for East Africa, Dr Yorston (with Prof Adala as co-author) underscored the professional maldistribution with 80% of the ophthalmologists living in the cities and 80% of the population in rural areas. Trained ophthalmic assistants provide the crucial link. Kenya, Uganda, and Tanzania have officially approved, one-year training programmes, but together produce only about 20 graduates each year. Practical skills are emphasised. Assistants must be able to deal with 90% of the patients and refer the rest. The current goal is to have for each 1 million population; 1 ophthalmologist, 2 non-MD cataract surgeons, and 10 ophthalmic assistants. For East Africa this means 3-4 times more ophthalmic assistants than are available now. Their problems, shared by all East African health workers, are low morale, poor pay, inadequate resources, and little supervision.

Dr Schwab described Zimbabwe and the SADAC course in Malawi, serving especially southern Africa. Since 1983, 206 trainees have graduated from this one-year course which is recognised by WHO. Many ophthalmic assistants, clinical officers, and nurses have been trained one additional year by ophthalmologists and perform trichiasis, entropion, and cataract surgery in various African countries.

Prof. Venkataswamy reported on existing infrastructures, the expanding role of, and increasing need for trained ophthalmic assistants in India. To date, 37 medical schools have trained 3,040 assistants who work quite independently, mostly in primary health centres, and do screenings in villages and schools. Most of the private eye surgeons and volunteer organisations do not have trained ophthalmic assistants, and there are considerable variations when they are trained. Generally, they do not perform eye surgery. The government has stopped recruiting ophthalmic assistants and several of the training centres have closed. Aravind Eye Hospital was the first to train assistants, but lack of government accreditation and certification is a problem. Last year, Aravind worked with 45 eye surgeons and 200 ophthalmic assistants in hospitals and camps, operating on 54,000 cataracts, the majority with IOLs. There is a need for at least one ophthalmic assistant for each of the anticipated 20,000 primary health centres in India.

Dr Pararajasegaram, of WHO, covered prevalent eye diseases and OMP in other South Asian countries. Over the past two decades, training of ophthalmic assistants (originating from the trachoma assistants), has been promoted and supported. They represent the mid-level eye care worker. Bangladesh offers a one-year course, based on ophthalmic nursing, including 10 weeks of surgical assistance training. Nepal's three-year training provides the "back bone" of eye career in that country. In Thailand, 316 fully trained nurses have been additionally trained for six months in ophthalmic in and out-patient care and surgical theatre technique.

A different perspective of effective use of OMP was offered by Ms Hall, COT (Certified Ophthalmic Technician). Now in its second, longitudinal five-year phase, the Barbados Incidence Study of Eye Diseases was designed to establish clinical and statistical features of glaucoma, cataract, macula degeneration, and diabetic retinopathy in a random population sample of over 4,700 in the 40-84 year age group. The data gathering team includes one COT, a nurse/retinal angiographer, an RN/fundus photographer, an ophthalmic nurse, and other support personnel, headed by an ophthalmologist. Forty percent of participants are seen by allied health personnel only.

Dr Morgan, focused on the examination and certification programmes of the Joint Commission on Allied Health Personnel in Ophthalmology (JCAHPO), which organised this workshop. Established 25 years ago and composed of 12 major US and Canadian ophthalmological societies, this organisation has, for the first time, set uniform standards for ophthalmic assisting in a career ladder format. After practical and written tests, certification is achieved at three ascending levels; Ophthalmic Assistant, Technician, and Technologist. Increasing hours of continuing education credits are required for recertification every three years. The quality of its own and other continuing education courses is impartially monitored by JCAHPO. Last year, exams were administered in 14 countries. To date, almost 14,000 OMP are certified in North America and abroad. JCAHPO is expanding internationally and happy to share its experiences with other countries and all prevention of blindness programmes.

Prof Evans presented an overview of the existing 32 US and Canadian formal education and training programmes, which are accredited by an autonomous Joint Review Committee for OMP, recognised by the US Department of Education. Course contents at the three levels match the JCAHPO exams. Quality control and outcomes are ascertained by site visits and re-accreditation. Program and Medical Directors have formed a Consortium of Ophthalmic Training Programmes to improve communication within and outside of North America.

Ms Sheffield, COMT outlined, from her own training experience in Georgetown University, many tangible and intangible curriculum benefits which can be applied by the JCAHPO-certified ophthalmic technologist to prevention of blindness programmes. NGOs which have successfully integrated such highly skilled OMP in their missions include IEF, HKI, CBM and ORBIS International. This cadre of staff has helped set up eye care systems and ophthalmic assistant training programmes in developing nations. Their potentials, fine-tuned and adapted to local needs, represent a resource yet to be fully utilised.

A lively discussion period ensued. Questions concerned training programme design and materials, local organisational difficulties, WHO's possible role in certification and accreditation issues, and terminology. The large attendance underscored the timeliness of the workshop.

WORKSHOP REPORT:
OCULAR LEPROSY - WHY SHOULD IT CONCERN US ?
Chairman: Mr TJ ffytche, FRCS, FRCOphth, St Thomas' Hospital, UK

The IAPB workshop on ocular leprosy was the first on this subject to be held at a General Assembly and was designed to show that the disease should be considered as an important and significant cause of preventable blindness.

Programme.

The meeting commenced with an initial overview of leprosy and its ocular complications by Mr T ffytche (London) and this was combined with a contribution by Dr S Lewallen (Malawi) on general aspects of the disease and its treatment. The leading causes of blindness were shown to be corneal opacification, associated with exposure or hypaesthesia, uveitis and cataract, and the prevalence of these was related to the type of leprosy (paucibacillary or multi bacillary).

The complicated and varied epidemiology of the disease was discussed by Dr P Courtright (Malawi) and this was followed by reports on leprosy and its care in Eastern Europe by Dr F Brandt (Germany), in Turkey by Dr M Karacorlu and in India by Dr S Goud.

There followed a section on clinical aspects and research into ocular leprosy in which Dr Karacorlu reviewed current methods of examination and investigations that are being undertaken as part of a research programme in Turkey. The importance of basic pathological studies in the disease was stressed by Dr Brandt who discussed the difficulties in obtaining specimens and in arranging for their examination. Dr Goud reported his experiences with ocular surgery on leprosy patients in a busy centre in India, and Mr ffytche discussed the problems of residual eye complications present or developing after the patient had been classified as "cured", not least those related to the stigma that the disease still attracts in many countries.

The final section consisted of presentations by Dr Lewallen and Dr Courtright and was devoted to the subjects of training of health workers in simple eye examination and methods of blindness prevention, and the integration of eye care services into leprosy control programmes.

Conclusions.

The three-hour session contained a wide variety of topics, presenting a number of important aspects of the disease, and hopefully providing a stimulus for further studies and involvement by associations such as the IAPB.

Although information on the prevalence and incidence of ocular complications in leprosy is sketchy, it can be reasonably supposed that there are 1/4 million blind from leprosy and a further 1/4 million leprosy patients blind from other causes. The disabilities, deformities and stigma that affect patients should also be taken into account in these calculations, since they reveal an important population of disadvantaged patients who need special attention, which, in many parts of the world, may still be denied.

There is little doubt that the introduction and wide-spread distribution of multidrug therapy will have a significant effect on reducing the incidence of ocular complications, but this requires co-ordination and integration of health care workers trained in eye care into existing leprosy control programmes.

The risk factors for blindness have yet to be clearly identified and they vary from region to region. In many cases ocular pathology is initiated before the diagnosis, and "cured" patients, with on-going eye problems, may already be outside leprosy control. Education should therefore be a priority, together with the establishment of appropriate and effective referral systems.

Above all it is necessary to increase the involvement of ophthalmologists in leprosy. It is still the systemic disease with the highest incidence of ocular complications, the majority of which can be effectively prevented, if not cured; yet only a handful of eye doctors are prepared to devote some of their time and experience to it. It is hoped that the holding of this ocular leprosy workshop within the forum of the IAPB General Assembly will help stimulate more interest and concern.

IAPB BUSINESS MEETING

PRESIDENT'S REVIEW OF THE QUADRENNIUM

Mr Alan W Johns

The last quadrennium, culminating with the work of this Fifth General Assembly, has been notable for the volume of successful regional activity in direct response to the mandate you gave to me in Nairobi and building on the strong foundations laid by my predecessors. As you will know from the reports of the Regional Chairmen, conferences have been held in every region except that of Europe where the holding of this Assembly in Berlin is meant to stimulate awareness of our objectives in Central and Eastern Europe. Experience of these conferences indicates that they are at their most successful when, like those of Latin America and the Western Pacific, they are held in conjunction with a regional meeting of ophthalmologists or a WHO regional workshop. The stage is now set for an increasing proportion of our combined resources to be used in regional activities and for determined implementation of recommendations arising from each region, such as that of the Eastern Mediterranean in establishing a regional training centre for ophthalmic paramedic personnel engaged in the provision of outreach eye care services.

On other fronts, the Agency's secretariat has endeavoured to expand our financial support, to maximise the impact of the Newsletter, both in its contents and its circulation which now encompasses over 3000 subscribers, and to achieve the largest measure of interaction with member organisations. Thus, in addition to attending the majority of regional conferences, I have also accepted invitations to participate in the supra-national ophthalmic conferences and the assemblies of the World Blind Union and the International Council for Education of People with Visual Impairment.

Of course, preparation for this Assembly has been a major priority for me in which I have benefited enormously from the support given by two meetings of the Executive Committee over the period and from the work of the German National Committee and Christoffel Blindenmission, not to mention my immediate colleagues in the Agency's secretariat.

When I accepted this role in 1990, I saw my task as that of leading the Agency in formulating a work plan which would prioritise our objectives, enhance the unique relationship between ophthalmologists, health planners and NGOs, and pursue the significant expansion of our regional activity. I hope you will agree that the intervening period has seen much of that in progress and, that this Assembly, with the awesome amount of planning and support which you have given to it by your very active participation has capped the quadrennium and provided the springboard for the next escalation of our work. At this point I cannot praise the events of the past week without thanking three essential teams for the excellence of their support - I refer, of course, to those of our colleagues who have acted as rapporteurs and to the interpreters and translators whose product you will see shortly in the conclusions and recommendations.

Through your company and support, I have greatly enjoyed this job of being your President and strengthened my belief in the ability of men and women from different nations and cultures to collaborate in this critical, humanitarian task of sustaining a global reduction in the prevalence of blindness. I wish my successor, Dr Pararajasegaram, and his team every success in continuing with that objective.

PRESENTATION OF AWARDS

In recognition of outstanding achievement towards fulfilment of the Agency's objectives, awards were presented to:-

Mrs Virginia Boyce	(USA)
Dr Marcel Chovet	(France)
Sister Brenda Down	(UK)
Prof. Volker Klauss	(Germany)
Dr Kazuichi Konyama	(Japan)

Poster Competition

The winners in the *Health Education Section* were the **Danish Assistance to the National Programme for the Control of Blindness** for the variety of posters printed in the local language "Marati".

The winners in the *Scientific Section* were **Dr H S Chana and Prof. V Klauss** for the **Role of Traditional Healers in Primary Eye Care in Zimbabwe**.

Runners-up in the *Scientific Section* were (1) **Drs Mwaka and Makerese** for their poster on **Ophthalmic Instrument Care and Use**. (2) **Dr E Maul and Dr L B Ellwein** for **Sightfirst Cataract Projects in Latin America**.

A *Special award* was presented to Mr Peer Feierbach of Christoffel-Blindenmission for the excellently designed **Fifth General Assembly** poster.

RESOLUTIONS

The following Resolutions were carried:-

Election of Officers (see following section)

Proposer: Dr A Foster
Seconder: Mr D Chaudhri

Election of Board (see following section)

Proposer: Dr A Foster
Seconder: Prof. F Billson

Treasurer's Report (see Appendix III)

Proposer: Prof. Prem Prakash
Seconder: Dr S Gilbert

REVISION OF THE CONSTITUTION

The Assembly, by Special Resolution, mandated to the Executive Committee the Revision of the Constitution.

PRESENTATION OF CONCLUSIONS AND RECOMMENDATIONS

Dr Allen Foster

The Conclusions and Recommendations arising from the Scientific Programme of the Assembly were available to all participants in English, French, German and Spanish. Dr Foster paid tribute to all who had made this possible.

SIXTH GENERAL ASSEMBLY

The proposal that the next Assembly should take place in 1999, to avoid clashing with the quadrennial meeting of the International Conference of Ophthalmology, was agreed. Dr Pararajasegaram read to delegates the letter received from the Minister of Health, People's Republic of China in support of an invitation from the Chinese National Committee for the Prevention of Blindness for Beijing to be the venue for the 6th General Assembly. Delegates asked that the gracious invitation extended to IAPB be given serious consideration by the officers of the Agency.

REGIONAL MEETINGS

In recognising the value of the meetings which had taken place within the quadrennium and the contribution of the regions to the success of the Assembly, the Board requested the Regional Chairmen to suggest dates, venues and budget proposals for future meetings and report back to the principal officers.

ORGANISATION OF THE 5TH GENERAL ASSEMBLY

By proposal of Mrs Virginia Boyce, a resolution of appreciation was passed for the excellent work done by the "behind the scenes" staff, namely, Gisa Paul-Mechel, Maggie Haws, René Leudesdorff, and their associates.

INCOMING PRESIDENT'S ADDRESS

Dr Ramachandra Pararajasegaram

Mr Alan Johns, Ladies and Gentlemen,

I feel deeply honoured and privileged to be elected to this prestigious and responsible office of President of the International Agency for the Prevention of Blindness. I take up this office with immense humility in the knowledge and realization that I lack the vision of a John Wilson, the leadership qualities of a Carl Kupfer, or the administrative acumen of an Alan Johns. These are the three luminaries who have preceded me in this responsible office.

All I bring to bear to this position is four decades of service in ophthalmology and eye care, which privileged me to observe, participate and to some degree contribute to a better understanding of the ways in which blindness could be alleviated, if not entirely prevented. Enormous changes have taken place over the last forty years. New approaches and new methods have immensely expanded over this period, some of which boggle the imagination. Yet over 35 million people around the world remain blind, and over double that number are in danger of becoming so.

I have seen much of this blindness in the rural areas of Asia, Australia and Africa, and in my own country, Sri Lanka. It was exciting and of immense value for me, as an ophthalmologist in active clinical practice nearly twenty years ago, to have been able to work briefly in India, West Africa and Australia in community eye care programmes. It was a wonderful opportunity to see and learn something about the way the majority of the earth's people lived, and how their life-style, varied environment and inaccessibility to services were responsible for their eye health status.

It taught me that good ophthalmology is not merely having a good pair of hands - it also means having a good head and importantly a good heart, all connected together. This is the message that some of us who are ophthalmological professionals need to carry away from this exciting Assembly. This is what community eye care is all about: the necessity to reach out to communities and populations that have dire needs but haven't the power - social, political or economic - to access, let alone demand services; also to prevent and preempt blinding disease rather than undertake crisis management ophthalmology.

Vaclav Havel, President of the former Czechoslovakia, once said:

"The salvation of this human world lies nowhere else than in the human heart, in the human power to reflect, in human meekness and in human responsibility."

When I say this in this gathering, I am talking to the initiated, to the convinced and to the converted. However, all of us need, in our own way, to spread this message.

The objective and perspectives of our organization, IAPB, were spelt out and received their impetus in 1978, at the 1st Assembly in Oxford. Few among us who were privileged to be present in Oxford would ever forget that memorable Assembly. We have moved forward and changed since then, for the last decade has been a period of quickening changes - social, political, economic, ecological and technological. We need to have the ability to recognize and to attempt to deal with these changes. As you all know, Berlin was chosen as a venue to address some of these challenges close at hand.

IAPB is a unique organization, unparalleled in any other discipline.

It brings together under one umbrella the International Federation of Ophthalmological Societies, the World Blind Union, the major international nongovernmental organizations in blindness prevention, and a group of committed and talented individuals representing countries and disciplines, both directly and indirectly impinging on eye health. We are here together in IAPB because we have a shared vision - a vision of a sighted world.

Ladies and Gentlemen:

"Few, if any, forces in human affairs are as powerful as a shared vision".

The strength and mandate of IAPB lie not only in the prestige and power of the member organizations individually, but more so in the collective voice of its constituents. It is this collective voice of advocacy, of activation and of committed action that I would like our organization to achieve over the next five years.

We talk of political will and political commitment as the bedrock of a successful programme. Political commitment to blindness prevention does not come easily amidst the multiple competing demands on governments. But we need to seek, stimulate and sustain political commitment. This, to my mind, is a primary mission and mandate of IAPB.

All of you INGOs have, through your own dedicated efforts - through pilot or model programmes, innovative approaches, training courses, etc. - indirectly influenced some governments to place blindness prevention on their agenda. Among others, the two most populous countries, China and India, are exemplary examples of such political commitment.

I think professional ophthalmologists, with a few exceptions, have not shared this commitment. They all have their commitment to clinical ophthalmology - sadly more and more to the science and less to the art of ophthalmology. This is another matter. What, to my mind, is lacking is the stimulus and leadership that they can provide, individually, and collectively as national and supranational societies, and of course at the international level, to politicians and decision-makers. I think we ophthalmologists have to think globally/nationally, but act locally. The ICO and IFOS have taken this as a major challenge and, together with their partner organizations and individuals in IAPB, I am confident we can move on this. The regionalization of IAPB would no doubt foster the greater involvement of the local ophthalmological community in these endeavours.

I would like to say a few words about the WHO Programme for the Prevention of Blindness - in a way fathered by IAPB, but now come of age and in collaborative relationship with IAPB. I have had the distinct advantage and unique privilege of being actively associated with both IAPB and WHO/PBL since their inception. We have in both organizations a common objective - a common mission and vision. We need to complement each other, though each organization is bound by its own rules and procedures. But together, our strength is greater than the mere sum of each individually. We need to strengthen this further, both collectively by IAPB, and, where necessary, individually, with WHO.

One of the major objectives in our lives should be to leave this planet in a better condition than we "inherited" it. We owe it to our fellow men and women that we, eye care providers, will

pledge to help in our own way, to achieve this, as far as the sight of the world's population is concerned.

Finally, Ladies and Gentlemen, may I conclude by thanking you all once again for the confidence reposed in me. I bring to bear to this august office a commitment to the betterment of mankind, a sense of purpose to take this organization forward toward the end of this millennium and the dawn of a new millennium where, through our efforts in the past, in this Assembly, and in the future, we would provide the basis, direction and action for a better world, and an improved quality of life for all its people - a quality not devalued or debased by needless loss of sight.

This is a challenging task but, with your guidance and active support, I pledge to seize every opportunity to help achieve this mission of the Agency. I look forward to working with all of you.

Thank you.

IAPB LEADERSHIP 1994-1999

IAPB BOARD 1994-1999

President

Dr R Pararajasegaram

Founder President

Sir John Wilson

Honorary President

Dr Carl Kupfer

Immediate Past President

Mr Alan W Johns

Senior Vice President/President Elect

Dr Hannah B Faal

Treasurer

Dr Art T Jenkyns

Secretary General

Mr Alan W Johns

Vice President - ex-officio

Em. Prof. Akira Nakajima (President, International Federation of
Ophthalmological Societies)

Mr David Blyth (President, World Blind Union)

Rev. Christian Garms (Chairman, Consultative Group of NGOs)

Honorary Vice Presidents

Sheikh Abdullah M Al-Ghanim

Mrs Virginia Boyce

Dr R P Pokhrel

Dr P Siva Reddy

REGIONAL CHAIRMEN AND CO-CHAIRMEN

Africa Region

Chairman: Dr Moses C Chirambo

Co-chairman: Prof. A Abiose

Co-chairman: Prof. J S Diallo

Co-chairman: Prof. A D N Murray

America Region

Chairman - North: Dr Carl Kupfer
Co-chairman: Mr John M Palmer, III
Co-chairman: Ms Victoria Sheffield
Chairman - South: Dr Francisco C Contreras
Co-chairman: Dr Fernando Beltranena
Co-chairman: Dr Newton Kara-José
Co-chairman: Dr Eugenio Maul

Eastern Mediterranean Region

Chairman: HRH Prince Abdul Aziz Bin Ahmed Al-Saud
Co-chairman: Prof. Dr Mahmoud Hamdi Ibrahim
Co-chairman: Prof. Dr Mohammad Daud Khan
Co-chairman: Prof. Ridha Mabrouk

European Region

Chairman: Dr Marcel Chovet
Co-chairman: Mr Timothy ffytche
Co-chairman: Prof. Dr Volker Klauss
Co-chairman: Prof. Jan Kolin
Co-chairman: Prof. I F Maitchouk
Co-chairman: Prof. Petja Vassileva

South-East Asia Region

Chairman: Dr Gullapalli N Rao
Co-chairman: Dr Rabiul Husain
Co-chairman: Dr Panom Sanitprachakorn

Western Pacific Region

Chairman: Prof. Frank Billson
Co-chairman: Prof. Patrick C P Ho
Co-chairman: Dr Kazuichi Konyama
Co-chairman: Dr Lim Kuang Hui

Group A (5)

Appointed by the International Federation of Ophthalmological Societies:

Members

1. Prof Cheng Hu
2. Dr Y Dadzie
3. Dr I Badr
4. Prof. H Taylor
5. Dr H Dunbar Hoskins, Jr.

Group B (5)

Appointed by the President of the World Blind Union (WBU), subject to confirmation by the WBU Executive Board:

Members

1. Sheikh Abdullah M Al-Ghanim
2. Dr Franz Sonntag
3. Sra. Dorina de Gouvêa Nowill
4. Dr Rajendra T Vyas
5. Mr William F Gallagher

Group C (12)

National Members:

Members

1. Dr Hannah B Faal (Gambia)
2. Prof. H Adala (Kenya)
3. Dr Delia Durango (Ecuador)
4. Dr Juan Battle (Dominican Republic)
5. Mrs A Iwahashi (Japan)
6. Dr Sun Bao-chen (China)
7. Prof. Dr Prem Prakash (India)
8. Dr R Seimon (Sri Lanka)
9. Dr Fusun Sayek (Turkey)
10. Prof. G J Johnson (UK)
11. Prof. A Amraoui (Morocco)
12. Prof. S Ayed (Tunisia)

Alternates

To be advised

Group D (4)

Scientific Disciplines other than ophthalmology:

Members

1. Mr W G Brohier
2. Dr U Ko Ko
3. Dr V Ramalingaswami
4. Mr E McManus

Group E (12)

A representative from each of the following international non-governmental/ service organisations:

1. Christoffel-Blindenmission
2. Helen Keller International Inc.
3. International Eye Foundation
4. Lions Clubs International Foundation/SightFirst
5. Nadi Al Bassar/North African Center for Sight
6. Norwegian Association of the Blind and Partially Sighted
7. Organisation pour la Prévention de la Cécité
8. Organización Nacional de Ciegos de España
9. Orbis International, Inc.
10. Seva Foundation
11. Sight Savers International
- 12.

Group F

Individual members by reason of an outstanding contribution to international prevention of blindness activities:

1. Dr G Venkataswamy
2. Dr Alfred Sommer
3. Dr Joseph Taylor
4. Dr Bjorn Thylefors
5. Dr R P Pokhrel
6. Dr Allen Foster

Honorary Life Members

Sir John Wilson

Prof. Barrie R Jones

Dr Carl Kupfer

**IAPB
FIFTH
GENERAL
ASSEMBLY**

Berlin May 1994

Programme

PROGRAMME

MONDAY MAY 9

AFFORDABLE EYE CARE - what price sight?

- 0900 OPENING CEREMONY
Chairman: The President of IAPB
- 0945 KEYNOTE ADDRESS - Prof. Alfred Sommer, Dean, School of Hygiene
and Public Health, Johns Hopkins University, Baltimore, USA.
"AFFORDABLE EYE CARE"
- 1030 - 1130 *Recess*
- 1130 REPORTS from the Regional Chairmen taking up the "sustainable"
theme from the 4th General Assembly and the progress made in the last 4
years.
(Chairman: Mr Alan Johns)
- 1230 - 1400 *Lunch*
- 1400 REGIONAL WORKSHOPS SESSION 1 (Chaired by Regional
Chairmen/Co-Chairmen)
Comprising 4 Regional Workshops:
(i) Africa (ii) Asia (iii) Latin America (iv) Eastern Europe
AFFORDABLE EYE CARE - what price sight?
 (a) surgically preventable blindness
 (b) infectious eye diseases
 (c) eye diseases in children
- 1530 - 1600 *Recess*
- 1600 REGIONAL WORKSHOPS SESSION (continued)
- 1700 - 1800 PLENARY SESSION I (Chairman: Dr M Chirambo)
Report back from Regional Workshops Session 1 Steering Group.

TUESDAY MAY 10

ACCESSIBLE EYE CARE - reaching "the end of the track!"

- 0830 PLENARY SESSION II (Chairman: Prof. V Klauss)
- Accessible eye care as part of Primary Health Care and Community
Based Rehabilitation (Dr D Yorston)
- Accessible eye care in Africa - Manpower Development (Dr H Faal)

	Accessible eye care in Africa - Manpower Development (Dr S Resnikoff)
	Accessible eye care in Asia - Service Delivery (Mr RD Thulasiraj)
	Accessible eye care in Latin America - Mobilising Resources (Dr JC Silva)
0930	Panel Discussion
1030 - 1100	<i>Recess</i>
1100	REGIONAL WORKSHOPS SESSION 2 - Accessible Eye Care (Chaired by Regional Chairmen/Co-Chairmen)
1230 - 1400	<i>Lunch</i>
1400	REGIONAL WORKSHOPS 2 (continued)
1500 - 1530	<i>Recess</i>
1530 - 1630	PLENARY SESSION III (Chairman: Dr C Kupfer) Report back from Regional Workshops Session 2 Steering Group.

WEDNESDAY MAY 11

OPTIONAL PROGRAMME

A) WORKSHOPS

0900 - 1200	Assessment of Vision Function and Quality of Life as perceived by the Cataract Patient. (Chairman: Dr Leon Ellwein, National Eye Institute, USA)
0900 - 1200	Trachoma Control: The opportunities and constraints for integration into existing health and eye care delivery systems. (Chairman: Dr Hannah Faal on behalf of The Edna McConnell Clark Foundation, USA)
1400 - 1700	Ophthalmic Medical Personnel in Prevention of Blindness Programmes: Their training and use. (Chairman: Dr Peter Evans, Joint Commission on Allied Health Personnel in Ophthalmology, USA)
1400 - 1700	Ocular Leprosy - Why Should it Concern us? (Chairman: Mr TJ ffytche, FRCS, St Thomas' Hospital, UK)

B) TECHNICAL VISITS

0900 - 1130	Visits to the University Eye Hospitals Berlin
and 1400 - 1630	
0800 - 1800	Visit to Zeiss Factory Jena (Limit 35 persons) Charge: DM 80, - per person

THURSDAY MAY 12

APPROPRIATE EYE CARE - new solutions for new problems!

- 0830 PLENARY SESSION IV (Chairman: Prof. H Taylor)
 Appropriate technology for eye care -
 experience in Africa (Dr HC Koppert)
- Appropriate technology for eye care -
 experience in Asia (Dr R Pararajasegaram)
- Appropriate technology for eye care -
 interface in Eastern Europe (Mr T ffytche)
- Appropriate optical services -
 low vision services and spectacles (Miss J Silver)
- 0930 Panel Discussion
- 1030 - 1100 *Recess*
- 1100 REGIONAL WORKSHOPS SESSION 3 - Appropriate Eye Care
 (Chaired by Regional Chairmen/Co-Chairmen)
- 1230 - 1400 *Lunch*
- 1400 REGIONAL WORKSHOPS SESSION 3 (continued)
- 1500 - 1530 *Recess*
- 1530 - 1630 PLENARY SESSION V (Chairman: Dr J Taylor)
 Report back from Regional Workshops Session 3 steering group)

FRIDAY 13 MAY

PLENARY SESSION VI

IAPB BUSINESS MEETING AND SUMMARY DISCUSSIONS

- 0830 President's Review of Quadrennium
- 0900 Presentation of Awards
- 0930 Election of Officers and Business Sessions
 (Chairman: Mr Alan Johns)
- 1045 - 1145 *Recess (To include Press Conference)*
- 1145 Presentation of Conclusions & Recommendations
 (Rapporteur - Dr Allen Foster)
- 1330 Incoming President's Speech

THE INTERNATIONAL AGENCY FOR THE PREVENTION OF BLINDNESS

Minutes of the meeting of the BOARD held at the Hotel Seehof, Berlin on 7 May 1994, prior to the commencement of the Fifth General Assembly.

Present: List of participants follows.

Apologies had been received from Sheikh Abdullah Al-Ghanim, Professor Siva Reddy, Professor Sun Bao-Chen, Dr Bjorn Thylefors and Sir John Wilson.

Mr Alan Johns, chairing the meeting, welcomed all participants and noted that, at the meeting of the Executive Committee in Kyoto, May 1991, unanimous agreement had been given to proceeding with Berlin as the venue for the Fifth General Assembly, with a view to stimulating attention to PBL activities in Central and Eastern Europe.

1. **Draft Agenda:** The draft Agenda was accepted by the meeting with some amendment to the sequence of items in order to facilitate discussion.

2. **Overview of arrangements for the Fifth General Assembly:** The Scientific Programme, Optional Programme on 11 May, Social Programme and domestic arrangements were outlined by the chairman.

3. **Revision of the Constitution:**

It was pointed out by the chairman that the powers and procedures embodied in the IAPB Constitution were excessive and complicated and that amendment was desirable to achieve clarity in a shorter governing document. An important aspect of such revision would be to include regional activity. As a point of interest, the World Blind Union and the International Council for Education of People with Visually Impairment had recently revised their Constitutions.

Following discussion, it was agreed that an interim draft of the Constitution prepared by the secretariat be circulated to members of the Board for comment and return to the chairman in advance of the Business Meeting on the final day of the General Assembly.

4. **Report of the Nominations Committee:** The Committee, consisting of Dr Foster (Chair), Dr. Beltranena, Dr Faal and Mr Thulasiraj had received nominations in respect of Officers for the forthcoming quadrennium(*) for presentation to, and discussion by, the Board. Dr Foster reminded Members of the Board that nominations could also be proposed from the floor.

(*) The President informed the meeting that, in order to avoid clashing with the quadrennial meeting of the International Conference of Ophthalmology, it was proposed that the next General Assembly should take place in 1999, i.e. a space of 5 years, and thereafter quadrennially.

The nominations were:-

President: Dr R Pararajasegaram.

Senior Vice-President and President Elect:

Rev. C Garms had felt unable to take up
his nomination and the post remained vacant
pending further decision.

Treasurer: Dr A T Jenkyns.

Secretary General: Mr Alan W Johns.

In the absence of further nominations from the floor, it was proposed by Dr Kupfer seconded by Dr Taylor and formally **RESOLVED** that the above-mentioned nominations be accepted. Board members thanked Dr Foster and his committee for the work carried out.

5. Establishment of a Permanent Secretariat.

Mr Johns reported that a letter had been received from the Chairman of Sight Savers offering accommodation at their headquarters in Haywards Heath to the IAPB Secretariat for the forthcoming quadrennium; namely a continuation of the facility that had existed during his own Presidency. The cost of maintaining a permanent Secretariat, production of the Newsletter and other literature, and, very importantly, support to regional activity was discussed at length.

The question was raised as to the financial feasibility of holding a large, expensive Assembly every four or five years, to the detriment of continuing regional awareness through local conferences, which had produced good, practical results over the past four years. There was a divergence of opinion but, in the main, it was felt that a political will and commitment to prevention of blindness was more likely to be achieved at regional level. However, a global updating by means of an Assembly "piggy-backed" on to other international conferences should take place at agreed intervals. The matter would be discussed further by the Executive Committee and addressed in the redrafted Constitution.

It was clear to the meeting that additional income must be obtained to support the objectives and the administration of the Agency and **IT WAS AGREED THAT A FUNDRAISING GROUP BE SET UP** to examine the matter in depth.

It was also **AGREED THAT THE SECRETARIAT WOULD CONTINUE TO BE BASED AT SIGHT SAVERS** and that all costs pertaining to the Secretariat must continue to be recorded as had been the case during the 1990-94 quadrennium.

6. Treasurer's Report: Dr Jenkyns reported that the combined IAPB financial statements showed a balance at December 31, 1993 of approximately US\$230,000, including investments. The provisional budget for the 5th General Assembly, totalling DM.420,800, showed an estimated shortfall in the region of DM.77,000. It was agreed that any deficit would be covered by the IAPB and the German Committee for the Prevention of Blindness. Dr Jenkyns would be reporting further on the financial position during the Business Session of the Assembly.

7. Membership Fee Structure

Revenue from NGO membership fees had dropped substantially and had failed to reach the annual target of \$50,000 towards the total budget. Due to the global recession and reduced revenue, some NGOs were finding it difficult to meet the subscription level that had been agreed four years ago.

8. NGO Task Force to the WHO Programme for the Prevention of Blindness.

Mr Garms gave members a brief history of the background and objectives both of the Partnership Committee and the Consultative Group and, in particular, the support of the latter to the WHO Programme for the Prevention of Blindness. Unfortunately, in the last year or two, collaborative activity between the NGOs and WHO had declined to the extent that the Consultative Group was in danger of losing its credibility. In order to redress the situation, it had been suggested that a Task Force of NGOs from the group should be formed to work with the WHO Programme on programmatic planning and resource mobilisation. Following general discussion, it was agreed that this concept should be discussed between NGOs at a meeting to be held during the Assembly.

9. Progress of Regional Activities following Recommendations of the Fourth General Assembly.

During the quadrennium 1990-94, IAPB meetings had taken place in all regions (with the exception of Europe, which was anticipated to be held in 1995). The President noted that the Africa Regional Meeting, held in Johannesburg in October 1993 had been attended by several leading South African ophthalmologists, including professors from the Universities of Cape Town and Witswatersrand. It was hoped to have a regional meeting in francophone Africa during the forthcoming quadrennium. The Latin America Region had already announced its second meeting to be held in Guayaquil, Ecuador on 22/23 June 1995.

The majority of the Regional Meetings required a subsidy from IAPB of \$5,000. The meeting acknowledged the importance of regional activity and that funds must be raised to enable this work to continue.

10. Delegation Accreditation Procedure.

Mrs Boyce reminded the meeting that, according to the present Constitution, those entitled to vote on special resolutions at the General Assembly were: National and international delegates, and members of the Board. The number of national delegates per country was determined by the size of population, and a list of national delegates would be posted before the Business Session of the Assembly. Special resolutions would be required for the Election of Officers, the Financial Report and the Revision of the Constitution.

11. Business Meeting Agenda.

The Agenda for the morning of Friday 13 May, previously circulated, was approved by the meeting. In connection with item (h) of that agenda - Date and location of 6th General Assembly - Mr Lin Yan and Ms Zhang Hong presented a letter from Prof. Chen Minzhang, Minister of Public Health, The People's Republic of China, in support of an invitation from the Chinese National Committee for the Prevention of Blindness for Beijing to be the venue for the Sixth

General Assembly. The application was strongly supported by Professor Akira Nakajima and further discussion was, by agreement, adjourned to the Business Meeting.

12. Draft Agenda for the newly-elected Board on Friday, 13 May at 3 p.m.

It was agreed that this item should be addressed by the Executive Committee on Wednesday 11 May and should include Regional Workshops.

IAPB Board Meeting - 7th May 1994

PARTICIPATION

Members of the Board:-

Chairman:	Mr Alan Johns	(President)
	Dr R Pararajasegaram	(President Elect)
	Dr A T Jenkyns	(Treasurer)
	Mrs V Boyce	(Secretary/Registrar)
	Prof. Mrs A Abiose	
	Dr F Beltranena	
	Prof. F Billson	
	Mr D Blyth	
	Dr M C Chirambo	
	Dr M Chovet	
	Dr F Contreras	
	Prof. J S Diallo	
	Rev C Garms	
	Dr S Gilbert	
	Prof. G J Johnson	
	Prof. Dr Mohammad Daud Khan	
	Prof. Dr Volker Klauss	
	Dr C Kupfer	
	Prof. R Mabrouk	
	Prof. I F Maitchouk	
	Mr J Martone (representing Mr Oliver Foot)	
	Señor R Mondaca	
	Em Prof. A Nakajima	
	Dr L Pizzarello (representing Mr John Palmer)	
	Dr R P Pokhrel	
	Mrs V Sheffield	
	Dr A Sommer	
	Dr J Taylor	
	Dr A Trabelsi	

Observers: Mr Lin Yan
Dra Elvira Martin
Mr D O'Dwyer
Mr R D Thulasiraj
Ms Zhang Hong

In attendance: Dr A Foster
Mrs M Haws
Mrs G Paul-Mechel
Miss J Frampton

APPENDIX III

IAPB Combined Statement of Income & Expenses (All figures in US Dollars)

For the Period 1990 through 1993 Inclusive

Income

Memberships - Grants - Fees	\$275,136
Interest & Royalties	38,361
Book Sales	322
Tranfers from Affiliates	<u>157,503</u>
Total Revenue	<u><u>\$471,322</u></u>

Expenses

Meetings	\$102,229
Wages	43,678
Travel	36,925
Fourth General Assembly	62,638
Newsletter & Book on 4th General Assembly	59,101
Postage and Stationery	37,392
Audit, Banking, Miscellaneous, Accounting	<u>21,811</u>
Total Expenses	<u><u>\$363,774</u></u>
Surplus	<u><u>US \$107,548</u></u>

IAPB
Fifth General Assembly

International Conference Center Berlin, Germany
8-13 May, 1994

List of Participants

APPENDIX IV

IAPB FIFTH GENERAL ASSEMBLY, BERLIN - MAY 8-13 1994

LIST OF PARTICIPANTS

- Prof. Adenike Abiose, The National Eye Centre, Off Express Bye-Pass, PMB 2267, Kaduna, Nigeria
- Prof. Zuchra D Achrorova, Tajikistan Medical University, Rudaki 139, Dushanbe 734001, Tajikistan
- Mr Bernd Ackermann, [Lions Clubs International] Distr. 111-R, Eifelstrasse 14, 42698 Solingen, Germany
- Dr Basu Adhikari, Fateh Bal Eye Hospital, P O Box 32, Fultekra, Nepalgunj, Nepal
- Dr Tsunehiko Akamatsu, Akamatsu Eye Clinic, 1-34-1 Toshima Kita-Ku, 114 Tokyo, Japan
- Mr Erki Alho, Finnish Federation of Visually Handicapped, Mäkeläkatu 50, 00510 Helsinki, Finland
- Dr Justino Fadia Amadu, [Christoffel-Blindenmission] P O Box 326, Caracolstr. 23, Bissau, Guinea-Bissau
- Mr Claude Amar, Eyetech Foundation, 17 Rue de la Tremoille, 75008 Paris, France
- Dr Mwaka Amosi, Makerere University, New Mulago Hospital, P O Box 7072, Kampala, Uganda
- Prof. Abdelouahed Amraoui, Ministry of Public Health, Casablanca, Morocco
- Dr Abdou Amza, PNLCC, P O Box 247, Zinder, Niger
- Dr Raoul Andriamanamihaja, [Organisation pour la Prévention de la Cécité] 10 Rainizawabololona, 101 Antananarivo, Madagascar
- Dr Carlos Arieta, Unicamp, Brazil
- Dr Tasleem Arifa, Lady Reading Hospital Peshawar, P O Box 125, Peshawar, Pakistan
- Dr André Audugé, 24 rue du Palud-Raguenes, 29920 Nevez, France
- Dr Elisabeth Aurell, Synfrämjandet, Prästgårds 6, 41271 Göteborg, Sweden
- Dr Alain Auzemery, Centre Hospitalier de Sovinandriana Tananarive, c/o OPC, 9 rue Mathurin-Regnier, 75015 Paris, France
- Dr Haroon Awan, Al-Shifa Trust Eye Hospital, Jhelum Road, Rawalpindi, Pakistan
- Mr Norbert Axmann, Sender Freies Berlin, Kirchenfunk, Masurenallee 8-14, 14057 Berlin, Germany
- Prof. Joseph Ayanru, King Khalid Hospital, P O Box 1985, Al Kharj 11942, Saudi Arabia
- Prof. S Ayed, Institut Hedi Rais d'Ophthalmologie de Tunis, Bab-Saadoun, Tunis, Tunisia
- Dr Rajvardhan Azad, National Society for the Prevention of Blindness - India, Dr R P Centre, AIIMS, New Delhi, India
- Mr Örjan Bäckman, A & A Vision Optics, Stockholm Institute of Education, P O Box 69, 43222 Varberg, Sweden
- Dr Raimund Balmes, Muhimbili Med. Centre, P O Box 9731, Dar-es-Salaam, Tanzania
- Dr Meba Banla, Chr. Sokodé, P O Box 187, Sokodé, Togo
- Dr Everardo Barojas-Weber, Asociacion Para Evita La Ceguera En Mexico, Vicente Garcia Torres, No. 16, 04030, Coyoacan, D.F. Mexico City, Mexico
- Dr Juan Francisco Battle, Centro Cristiano Serv. Med. Dr. Elias Santana, P O Box No. 150, Fantinofalco No. 5, Santo

Domingo, Dominican Republic

Mr Wolfgang Bauer, Deutsches Komitee zur Verhütung von Blindheit e.V., Helen-Keller-Straße 5, 97209 Weitzhöchheim, Germany

Dr Fernando Beltranena, Hospital "Dr Rodolfo Robles", Diagonal 21, 19-19 Zona II, 0111 Guatemala City, Guatemala

Dr Frederico Hermes Beltranena, [Hospital Rodolfo Robles] C.N.P.S.Y.S.M., Sexta Ave A 14-17 Zona 1, 0101 Guatemala City, Guatemala

Prof. Iva Beradze, Georgia Ophthalmological Centre, ul. Machabeli 7, Tbilisi 38007, Georgia

Mr Michael Bergmann, Christoffel-Blindenmission, Nibelungenstr. 124, 64625 Bensheim, Germany

Ms Annika Bertilsson, A & A Vision Optics, P O Box 69, 43222 Varberg, Sweden

Prof. Frank Billson, Foresight, 345 Crown Street, Surry Hills, NSW 2010, Australia

Prof. Tamara Birich, Minsk Medical Institute, ul. Kulman 15 kv. 67, Minsk 220100, Russia

Dr Fernandez Bivar-Weinholtz, Lions Instituto, Oftal. Gama Pintc., Travessa Carga Nr. 2, Lisboa, Portugal

Mr Jack Blanks, River Blindness Foundation, 2a Calle Oriente No. 8, Antigua, Guatemala

Dr Christian Blignaut, Nkhoma Hospital, CMB ARO/S, P O Box 48, Nkhoma, Malawi

Mr David Blyth, World Blind Union, 557 St. Kilda Road, Melbourne, Victoria 3004, Australia

Mrs Virginia Boyce, 75 Bank Street, New York, NY 10014, USA

Dr Rainald Duerksen Braun, Hosp. Bautista Prog. Vision, P O Box 1171, Asuncion, Paraguay

Dr Philippe Briant, [OPC] Avenue Marechal-Joffre, 66120 Font Romeau, France

Dr Maria Briede, P. Stradins State Clinical Hospital, Pilsonu Street 13, 1002 Riga, Latvia

Dr Lawrence Brilliant, Seva Foundation, 8 North San Pedro Road, San Rafael, CA 94903, USA

Mr William Brohier, International Council for Education of People with Visual Impairment, 37 Jesselton Crescent, 10450 Penang, Malaysia

Mrs Helen Brooke, Vision Aid Overseas, 56-66 Highlands Road, Leatherhead, Surrey KT22 8NR, UK

Dr Peter Buchmann, Augenklinik der Universität München, Mathildenstr. 8, 80336 München, Germany

Mr Nico Buisman, CBM Masvingo Prov. Eye Care Prog., Morgenster, Masvingo, Zimbabwe

Dr René Canovas, Corpor. Ayuda al Limitado Visual, Las Heras 706, Casilla 87 C, Concepción, Chile

Dr Carlo Capoferri, Via della Stelline 5, 20146 Milano, Italy

Mrs Emmanuelle Carrad, Helen Keller International, Binamulia Bld., Jl Rasuna Said Kav 10, 12950 Jakarta, Indonesia

Mr Alfredo Carrera, ONCE, C/. José Ortega y Gasset 18, 28006 Madrid, Spain

Dr Raymond Castan, [OPC] Hopital Principal, P O Box 3006, Dakar, Senegal

Avv. Giuseppe Castronovo, Unione Italiana Ciechi, Via Borgognona 38, 00187 Roma, Italy

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Dr Harjinder Chana, Norwegian Association of the Blind and Partially Sighted, P O Box 1250, Mutare, Zimbabwe

Prof Dr Girish Chandra, Prevention of Blindness Committee Eastern Province, Qatif Hospital, P O Box 3112, 31471 Dammam, Saudi Arabia

Mr D N Chaudhri, S.485 Greater Kailash II, New Delhi 110048, India

Dr Ashok Kumar Chaudhry, [Lions Clubs International] 121 Pocket-D., Mayur Vihar II, Delhi 110091, India

Prof Cheng Hu, Eye Research Center, PUMC Hospital, 1 Shuai Fu Yuan, Beijing 100730, People's Republic of China

Dr Moses Chirambo, P O Box 30858, Lilongwe 03, Malawi

Dr Felipe Chiriboga, [CBM] Juan Leon Mera 453 y Roca, Of. 101, Quito, Ecuador

Dr Marcel Chovet, 64 rue Molière, 69003 Lyon, France

Dr Norval Christy, [Christoffel-Blindenmission] 1420 Santo Domingo Ave., Duarte, CA 90101, USA

Dr Viggo Clemmesen, Chr. Winthers Vej 28, 4700 Naestved, Denmark

Ms Gillian Cochrane, Ghana Association of Optometrists, P O Box 3065, Accra, Ghana

Dr Francisco Contreras, Inst. Nacional de Oftalmologia, Jr Miro Quesada 940, Lima 1, Peru

Dr Joseph Cook, Edna McConnell Clark Foundation, 250 Park Avenue, New York, NY 10177-0026, USA

Dr Sidi Coolibaly, [OPC] P O Box 82, Segou, Mali

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Dr Paul Courtright, Dept. of Ophthalmology, St. Paul's Hospital, 1081 Burrard Street, Vancouver, BC V6Z 1Y6, Canada

Ms Catherine Cross, Sight Savers International, Grosvenor Hall, Bolnore Road, Haywards Heath, West Sussex RH16 4BX, UK

Mr Klaus Dallibor, Friedlanderstr. 139, 12489 Berlin, Germany

Dr Richard Daniel, Christian Medical College & Hospital, 141 008 Ludhiana, India

Mr T K Das, Ministry of Health & Family Welfare, Government of India, A1/148 Safdarjung Enclave, New Delhi 110029, India

Dr Nivaldo Vieira de Souza, Fac. Med. Qibeirao Preto, HC-Oftalmologia Campus, 14048900 Sao Paulo, Brazil

Ms Rosa Amelia de Vasquez, Comite Prociegos de Guatemala, 9 Calle 3-07 Zona 1, Guatemala City, Guatemala

Dr Guillermo De Venecia, University of Wisconsin, Madison Medical School, 600 Highland Ave., Madison, Wisconsin 53792-3220, USA

Dr Karl-Heinz Dehe, Rüdesheimer Str. 4, 14197 Berlin, Germany

Dr Sajal Dewan, Bogra Christian Hospital, Eye Dept., PO & Dist. Bogra, Bogra 5800, Bangladesh

Dr Vinaya Ratna Dhakwa, [Seva Foundation] Nepal Eye Hospital Complex, GPO Box 780, Tripureswor, Katmandu, Nepal

Dr S P Dhital, Lum Bini Eye Care Project Seva, P O Box 30, Bhairahawa, Nepal

Prof. Joseph Diallo, [OPC] 51 Corniche Fleurie, 06200 Nice, France

Dr Andreas Dittrich, Augenklinik St. Vincent Karlsruhe, Ersingerstraße 14, 75210 Keltern-Dietlingen, Germany

Sister Brenda Down, [Sight Savers International] "Sunset Hill", Hillbrow Road, Bromley, Kent BR1 4JL, UK

Dr Michael Eckstein, International Centre for Eye Health, Institute of Ophthalmology, Bath Street, London EC1V 9EL, UK

Ms Joanne Edgar, Edna McConnell Clark Foundation, 250 Park Avenue, New York, NY 10017, USA

Dr Peter Egbert, Stanford University, SUMC Rm A157, Stanford, CA 94305, USA

Dr Akef El-Maghraby, Saudi Eye Foundation, P O Box 7344, 21462 Jeddah, Saudi Arabia

Dr Ahmed Elgalhud, Tripoli Eye Hospital, P O Box 625, Tripoli, Libya

Dr Klaus Ellendorff, [Christoffel-Blindenmission] P O Box 27, Agogo, Ashanti-Akim, Ghana

Dr Leon B Ellwein, National Eye Institute, 9000 Rockville Pike, Bethesda, Maryland 20892, USA

Mr Mats Ericsson, A & A Vision Optics AB, Birger Svenssons väg 14, 43240 Varberg, Sweden

Dr Daniel Etya'ale Essy, Hopital Central d'Enongal, P O Box 91, Ebolowa, Cameroon

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Dr Yolanda Zambujo, Ministry of Health, P O Box 994, R. Base Nchinga 585, Maputo, Mozambique

Dr Negussie Zerihun, Institute of M. Sciences, P O Box 585, Jimma, Ethiopia

Ms Zhang Hong, International Center for Medical and Health Exchange, Ministry of Public Health, 44 Houhai Beiyan, Beijing 100725, People's Republic of China

Ms Marcia Zondervan, c/o CBM Africa Office East, P O Box 58004, Kindaruma Road, Nairobi, Kenya

PHOTO GALLERY



Dr. Alfred Sommer, Dean, School of Hygiene and Public Health, Johns Hopkins University, delivers his Keynote address on the subject of "Affordable Eye Care".



Rev. Christian Garms, Prof. Volker Klaus, Prof. Akira Nakajima, Dr. Carl Kupfer and Mrs. Virginia Boyce at the Opening Session.



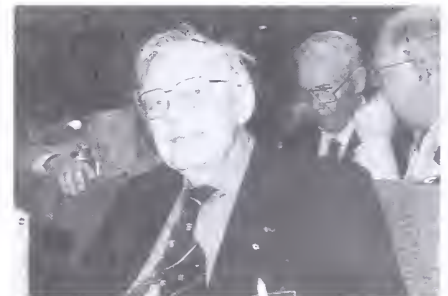
Dr. Juan Carlos Silva speaks about "Accessible Eye Care in Latin America".



Dr. Francisco Contreras and Prof. Frank Billson in plenary session.



Mrs. Virginia Boyce receives an engraved Selangor pewter plate from Mr. Alan Johns (outgoing President) in recognition of her services to IAPB.



Dr. Viggo Clemmensen, Registrar of IAPB from 1975 to 1983, was a most welcome delegate.



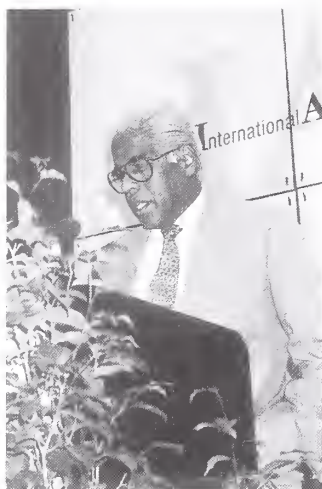
Dr. Leon Ellwein chairs a workshop on the "Assessment of Visual Function and Quality of Life as perceived by the Cataract Patient".



Mr. David Blyth, President of the World Blind Union, extends a welcome at the Opening Ceremony.



Dr. Art Jenkyns, IAPB's Treasurer, gives his Financial Report.



Dr. Ramachandra Pararajasegaram, incoming President, delivers his inaugural speech.



Dr. Marcel Chovet (foreground), IAPB Chairman for Europe, at a regional workshop session.



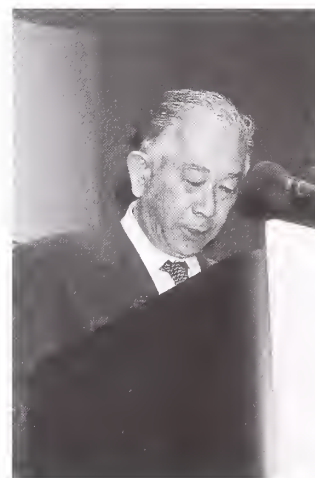
Dr. Carl Kupfer, Past President of IAPB, in plenary session.



Prof. Hugh Taylor chairing the plenary session on "Appropriate Eye Care".



Dr. Newton Kara-José in conversation with Dr. Fernando Beltranena during a regional workshop session.



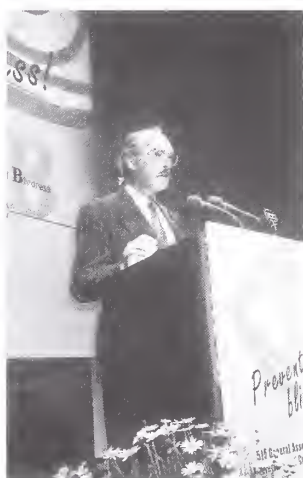
Prof. Akira Nakajima, President of the International Federation of Ophthalmological Societies, welcomes delegates at the Opening Ceremony.



Dr. Daniel Etya'ale, Prof. Adenike Abiose and Dr. Hannah Faal on the panel of the "Trachoma Control" workshop.



Dr. Joseph Taylor chairs the report-back session on "Appropriate Eye Care".



Prof. Volker Klauss, Chairman of the German Committee for the Prevention of Blindness, one of the host organisations.



Mr. Ravilla Thulasiraj discusses "Accessible Eye Care in Asia".



Dr. Allen Foster, Chief Rapporteur for the Assembly.

